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Dallas Revokes License Phase Of Code

DALLAS—The licensing provisions of the air conditioning and ventilating code for the city of Dallas, which had been approved late last year, have been revoked by the Dallas City Council. The action did not affect the provisions of the code which provide minimum standards and requirements for safe and suitable design, materials, and methods of installation.

Revocation came after a public hearing had been held on the complaint of the Homebuilders Assn. of Dallas County that the licensing provisions "tended to stifle competition and raised homebuilding costs." In revoking the licensing part of the code as written, the City Council recommended that the Homebuilders Assn. get together with those groups who had sponsored the licensing provisions and "work out a compromise."

Groups which had proposed and won approval for the licensing provisions included the Air Conditioning & Refrigeration Contractors Assn. of Dallas, the Mechanical Contractors Assn., the Sheet Metal Contractors Assn., and various other groups, together with individual contractors.

"We believed, and we still believe, that if the safety and

(Continued on Page 45, Col. 2)

Installations Of Big Systems Up During 1959

WASHINGTON, D. C. — Installed cost of central station air conditioning systems which went into operation in large multi-room buildings and commercial and industrial applications in the U. S. during 1959 is estimated at $715,080,000, compared with $604,130,000 in 1958, Air-Conditioning & Refrigeration Institute reported.

The ARI figures are based on shipments for use in the United States of compressors, condensing units, absorption systems, and centrifugal and reciprocating liquid-chilling packages of

(Continued on Page 45, Col. 3)

NHAW Meeting Set for New Orleans May 1-3

NEW ORLEANS—"Planning Your Policies for the Decade Ahead" will be the theme of the spring convention of Northamerican Heating & Airconditioning Wholesalers Association to be held at the Roosevelt hotel May 1 to 3.

Two panel workshop sessions devoted to inventory control and customer relations will be featured in the convention,

(Continued on Back Page, Col. 4)

'ARI Certification Plan Has Teeth—And They're Working'

Challenge Use of FHA Checks In Lieu of Tucson Inspections

TUCSON, Ariz.—A court suit here is challenging a city ordinance passed last year permitting builders building under FHA and VA financing to use FHA and VA inspections in lieu of city inspections.

Plaintiffs in the suit include the Associated Plumbing, Heating & Piping Contractors of Arizona, Tucson Area, Inc., and the Electrical Joint Industry Board of Arizona, Inc. In a recent hearing the court permitted two members of the Tucson Home Builders Assn. board of directors to intervene as defendants in the suit.

The ordinance provided building contractors with the option of having FHA, VA, or city inspections. Its announced goal was to cut down duplication of governmental inspections and to provide for a speedup in local building. The lawsuit charge the ordinace is unconstitutional because it violates state and Federal constitutional provisions for equal protection.

Before the lawsuit was filed

(Continued on Back Page, Col. 2)

WASHINGTON, D. C.—There are teeth in the air conditioning industry's self-policing unitary certification program—and they're working, according to Frederick J. Reed, chief engineer of the Air-Conditioning & Refrigeration Institute.

In a review of the testing system setup following adoption of the program Jan. 1, 1959, Reed said:

"Our certification program testing agency, the Electrical Testing Laboratories, Inc., of New York City, has been actively testing manufacturers' units since last November. At this juncture, approximately 15 units have been run through the exhaustive test required by the ARI Standard.

"Deficiencies in either rated capacity or equipment performance have been found in several units through a series of severe, punishing procedures which, in some cases, take a week's time for a single unit. Corrections either have been or are being made in all."

Once the testing equipment, which ETL designed and built for the purpose at a cost of $90,000, was in place and technicians were engaged for the job, the facility was run through a series of dry runs, Reed said.

"We had to be absolutely sure that our tests were fair and that we could state authoritatively the reliability of our procedure and findings," the engineer declared.

"This phase occupied more

(Continued on Back Page, Col. 1)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Creative Tolerance
Unpublished Anecdotes About the Great Kettering
What's New?
Sloan Never Knew
Ketteringisms
Story of the Week
Quotes of the Week

Creative Tolerance

What would your reaction be if a business associate told you he knew how to make a square circle? Or a perpetual motion machine? Would you really take time to hear him talk about such a preposterous idea?

Our historic past is strewn with records of men scorned or persecuted for new ideas—Jesus, Columbus, Darwin, Edison, Kettering, etc. Yet, their outlandish ideas changed the course of civilization.

"Ideas which will carry us forward to lasting prosperity and peace may be found—possibly even among your associates—today!" declares Crawford Greenewalt, president of du Pont.

"To harvest such ideas, a new dimension must be added to every executive's mental and emotional equipment—a readiness to accept the inherent creativeness of a fellow who seems odd by normal standards.

"America needs another Kettering."

Unpublished Anecdotes About the Great Kettering

An interesting fellow is A. A. McCormack. He lives in Cleveland, he is a consultant on condensing unit design . . . and he worked with C. F. Kettering.

Now, the late Charles Kettering probably was one of the most fascinating men of the Twentieth Century, if not of all time.

(He had a lot to do with the development of modern refrigeration and air conditioning, among multifareous other interests.)

So when Mr. McCormack gave out with hitherto unrevealed stories about this unfettered and

(Continued on Page 16, Col. 1)

CEC Directors Will Meet In Oregon May 4-6

GEARHART, Ore.—Board of directors of the Consulting Engineer Council will hold its annual meeting May 4, 5, and 6 at the Gearhart hotel, located on the Oregon coast near here.

Major items on the agenda include C.E.C.'s emergency program to oppose increased Federal competition with private engineering practice; final approval of the Manual of Consulting Engineering Practice; acceptance of three and possibly more new member associations; and adoption of a concrete public relations program. New officers will be elected.

Executive committee meetings on Monday and Tuesday will

(Continued on Page 45, Col. 2)

OHI Meeting Studies Inroads by Electric, Gas Competitors

NEW YORK CITY — New record in attendance was established when some 1,200 were registered for the 38th annual convention of Oil-Heat Institute held here April 4 to 7 in conjunction with the group's 23rd national exposition.

Chief concern of those attending seemed to be the problem of maintaining and possibly even expanding fuel oil and oil-burning equipment sales in the face of increasing competition from natural gas, and more recently, electric heat.

Two panels were held on electric heat, for example, one slanted for plumbing and heating contractors, the other for warm air contractors.

Details of various talks presented at the convention sessions will appear in future issues of the NEWS.

A few new products along

(Continued on Page 42, Col. 1)

MCAA To Discuss Refrigeration, Cooling May 7-12

NEW YORK CITY — Panel discussions on air conditioning and refrigeration are among events programmed for the 1960 convention of the Mechanical Contractors Association of America to be held May 7-12 at the Waldorf-Astoria.

Both discussions are scheduled for Monday, May 9, with the one on air conditioning set for 2:30 to 3:30 p.m. and the one on refrigeration from 3:30 to 4:30 p.m. M. S. Lebair will serve as chairman for both sessions.

The convention proper will be preceded by meetings of the board of directors and secretaries' conferences on Saturday and Sunday, May 7 and 8. Also, a directors' breakfast will be held Monday morning with the

(Continued on Page 45, Col. 3)

'Silver Shield Week' Kicks Off Program In Pontiac, Michigan

PONTIAC, Mich. — Kick-off banquet for the Oakland (county) Indoor Comfort Bureau will be held at the Elks Club here Monday evening, April 25, the week of April 24 to 30 having been officially proclaimed as "Silver Shield Week" by the mayor of Pontiac.

In addition to industry representatives and officials of the National Warm Air Heating & Air Conditioning Association, featured speaker at the banquet, which some 300 are expected to attend, will be Congressman Alvin M. Bentley.

The Oakland bureau, which for the past many weeks has been conducting a training program to qualify for a Silver Shield license, is headed by Bryan French, president; Sol Newhouse, vice president; Dale Carney, secretary; Joseph Wright, treasurer; and Roy Maxwell, who with the officers comprise the five-man board.

Tickets for the kick-off banquet may be obtained from the officers or at the door.

Heating, Cooling Meeting Set for May 5-7

MYRTLE BEACH, S. C. — Annual convention of the Heating & Air Conditioning Research & Development Association has been rescheduled for May 5 to 7 at the Ocean Forest hotel here, according to Dr. E. A. Fails, executive secretary.

Originals plans for holding the meeting in March were canceled because of bad weather.

Joint Industry Program Group Revises Temporary Heating, Cooling Agreement

WASHINGTON, D. C. — The Joint Industry Program Committee for the plumbing and pipe fitting industry, at a recent meeting, approved a clarification by its subcommittee which revised the temporary heating and cooling agreement formulated in 1924.

This pact, released last January after study by a 10-man labor-management subcommittee, has been further revised as follows, according to a report by the National Association of Plumbing Contractors:

"All temporary heating and cooling, including gas and oil-fired unit heaters, refrigeration and air conditioning, is recognized as the work of the mechanical contractor, with maintenance by United Association members rather than some other craft.

"It is optional with the owner or contractor to provide temporary heat, and to decide the number of hours it shall be in operation, so long as all phases of maintenance are recognized as work of the United Association, a member of which shall be in attendance during operational periods until the general tests are completed and the mechanical installation is accepted by the owner. The classification of buildings that require temporary heat shall be left to the adjudication of the local conference committees.

"The straight line principle shall govern the establishment of payment of wages for temporary heat. Local contract provisions can modify this rate principle in detail by requiring overtime payments for holidays as provided for in local agreements (but not for Saturdays or Sundays, or a provision for nationally established premiums for shift time).

"In the absence of any local agreement on temporary heat straight time shall govern except when the Fair Labor Standards Act applies to employment.

"Any local agreement that contains clauses in excess of these requirements shall be corrected to conform hereto."

The JIPC is comprised of representatives of the United Association and several contractor organizations, including the NAPC, the Refrigeration & Air Conditioning Contractors Association, and the Mechanical Contractors Association of America.

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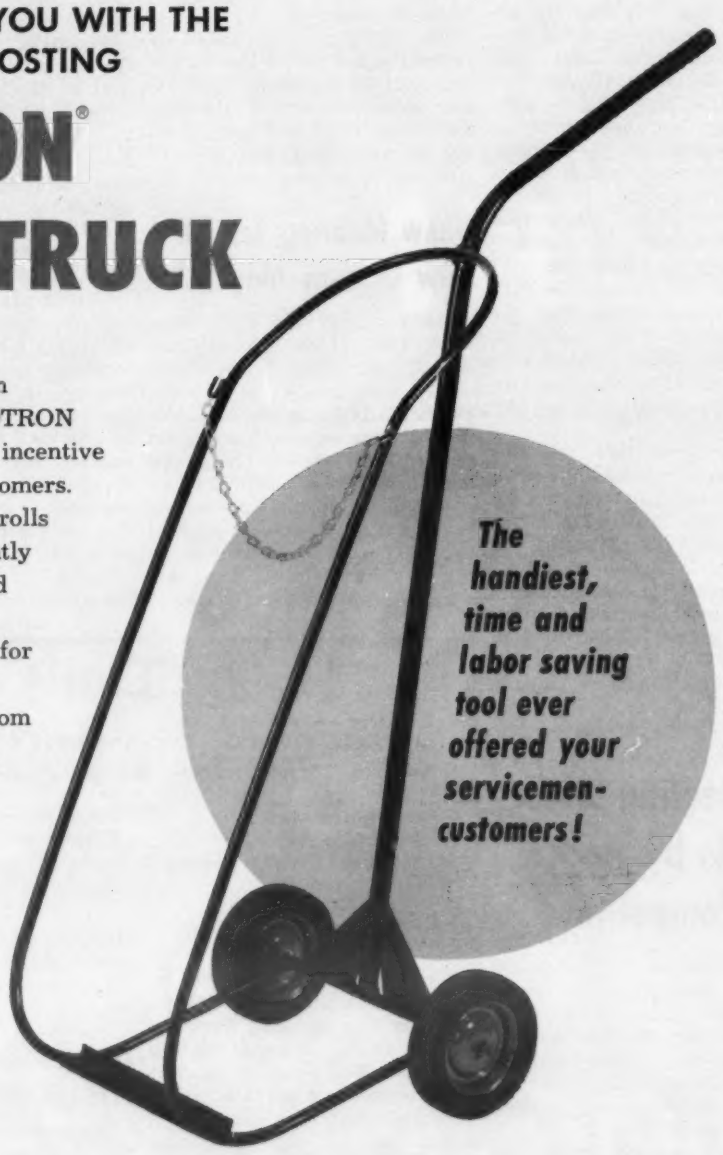

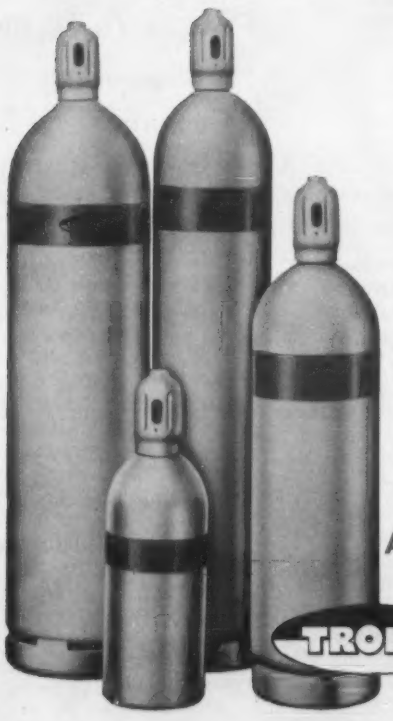

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Decision In Favor of Schaefer Upheld by U. S. Court of Appeals

NEW YORK CITY—In a decision handed down by Judge Learned Hand, the U. S. Court of Appeals for the Second Circuit recently upheld the District Court's decision in favor of Schaefer, Inc., Minneapolis, in its suit against another cabinet company to declare invalid the Patent U. S. Number 2750758.

This related to an open top gravity flow low temperature cabinet.

The suit was instituted by Schaefer on Aug. 20, 1956 to declare the patent invalid and not infringed.

On July 29, 1958, Judge Stephen W. Brennan of the U. S. District Court for the Northern District of New York, filed his decision for Schaefer, holding the patent invalid and not infringed. He dismissed claims against Schaefer for patent infringement and unfair competition.

Judge Brennan's decision was then appealed but has now been affirmed by the Circuit Court of Appeals.

The appeal was argued before Judges Learned Hand, Moore, and Smith on Feb. 10, 1960 in New York City by John D. Gould of Merchant and Merchant, Minneapolis, attorneys for Schaefer.

Clyde E. Ploeger Dies Unexpectedly on South American Trip

EVANSVILLE, Ind. — Clyde E. Ploeger, 58, director of engineering at Bendix-Westinghouse Automotive Air Brake Co., Evansville Div., died unexpectedly April 6 while on a vacation-business trip in Buenos Aires, Argentina.

Before joining Bendix-Westinghouse in 1956, Ploeger was the chief engineer of the Commercial Refrigeration Div. of Servel, Inc. Ploeger, who was responsible for many of the fundamental designs of hermetic refrigeration motor compressors, started his career at Servel as a test engineer in 1925.

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Sales of Air Conditioners In February Top Year-Ago Month In 5 of 9 Areas

DETROIT—Utility and association reports on February sales of air conditioners show volume ahead of the same month last year in five of nine areas.

Washington, D. C.

In the Washington, D. C. area, distributor sales of room air conditioners (including 2 hp.) soared to 2,820 from 1,456 in February of last year, according to the Electric Institute of Washington.

Philadelphia

The Electrical Association of Philadelphia reported that February air conditioner sales by distributors in that area amounted to 4,073, against 3,412 in February, 1959. For the first two months of this year, sales in the five-county area aggregated 8,782 against 7,626 in the like period of 1959.

Cleveland

A report from the Electrical League of Cleveland shows that room cooler shipments in Cuyahoga County reported by league member distributors for February rose to 276 from only 79 a year ago. First-two-month shipments totaled 447, up from the 315 recorded in the same period of last year.

Distributors in that area also shipped 53 central residential systems in February, a substantial gain compared with the 14 shipped in February last year. This raised shipments for the first two months of 1960 to 77, compared with 23 in the like 1959 period.

Dehumidifier sales also were on the upswing in the Cleveland area. February shipments amounted to 634, against 309 a year earlier, and for the first two months of this year, shipments totaled 1,016 compared with 356 a year earlier.

West Penn

In the southwestern area of Pennsylvania served by West Penn Power Co., dealers sold 37 room coolers, against 29 in February, 1959. However, the January-February total was less than that for the like year-ago period, 46 compared with 56.

Dehumidifier sales in the West Penn area reached 34 in February and 54 for the first two months. Figures for the corresponding periods of 1959 are 30 and 47.

St. Louis

In the territory served by Union Electric Co., St. Louis, 10 distributors shipped 755 air conditioners to dealers in February, down from the 837 shipped a year earlier. However, shipments for the first two months of 1960 topped the year-ago volume, 2,710 to 1,286.

Shipments of dehumidifiers by seven distributors in the same area rose to 532 from 315 in February, 1959. The January-February total was 566, compared to 395 in the corresponding 1959 period.

Wichita

According to a report from Kansas Gas & Electric Co., Wichita, dealers in that area sold 63 room units in February, compared with 107 the preceding February, and 15 central units against 35 a year ago.

For the first two months of this year, the dealers sold 93 room units, down considerably from the year-earlier figure of 151, and they moved 37 central units, against 58 in the January-February period of 1959.

Chicago

The Electric Association of Chicago reported that February sales of both central and room air conditioners by distributors to dealers and builders within a 50-mile radius of Chicago were well ahead of the same month last year.

The distributors sold 77 central air conditioners, a gain of 156% compared with February, 1959. In the first two months of this year, their sales of central units totaled 138, up 181.4% over the like 1959 period.

Room air conditioner sales by the Chicago-area distributors in February zoomed to 3,779—576% over a year earlier. This brought sales for the January-February period to 6,518, an increase of 481.4% compared with the corresponding year-ago period. Dehumidifier sales, however, were off 72% in February and 64.2% for the first two months.

St. Petersburg

A report from Florida Power Corp., St. Petersburg, shows that unit sales of heat pumps and air conditioners in February in its area were down slightly from the previous February. Sales dipped from 476 units last year to 464 this year. Heat pump sales were up but sales of conventional air conditioners were down. Volume for the first two months of 1960 was 989 units.

Chattanooga

February air conditioning sales were down, too, in the area served by the Electric Power Board of Chattanooga.

Reporting on dealer sales of domestic equipment in February, the utility indicated that 51 air conditioning units were sold, compared with 67 a year earlier, and 10 heat pumps compared with 9. Sales of commercial air conditioning units totaled 20 in February, 2 less than in February, 1959.

A report recently issued by the Cincinnati Gas & Electric Co., analyzing 1959 appliance, radio, and TV sales in the Greater Cincinnati trading area, shows that room air conditioner volume rose 55.5% compared with 1958.

Sales of room coolers in that area totaled 12,049 compared with 7,747 in 1958. Average 1959 retail price was $259.22 against $204.74 in 1958.

Dehumidifier sales in the Greater Cincinnati trading area were up last year, too. They amounted to 4,633, a 9.2% gain compared with the 4,244 sold in 1958. Average retail price rose to $107.10 in 1959 from $93.17 in the preceding year.

This skilled pair of hands belongs to a man who adheres strictly to the Viking tradition of quality. Like all his fellow workers, he is exercising great care to make absolutely certain that every last inch of Viking copper tubing meets your exact specifications.

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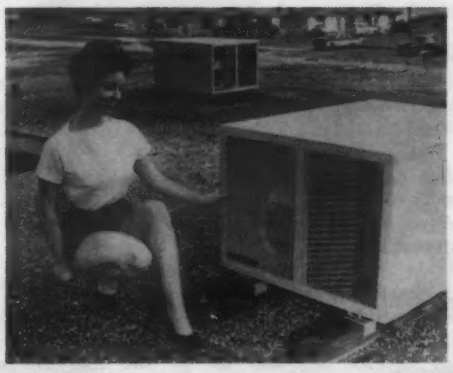
Central Units Solve Cape Canaveral Problem



ABOVE: TYPICAL AMANA central air conditioning unit, one of 680 heat pumps installed at the government's large scale housing project at Cape Canaveral. Other compact units can be seen atop roofs in background. Single unit both heats and cools the houses, which have from two to four bedrooms.

LEFT: CENTRAL AIR CONDITIONING systems for government housing project at Patrick Air Force Base, Cape Canaveral, Fla., employ ducts and registers to distribute air from Amana heat pump unit located on roof of dwelling. As an economy measure, ducts were left exposed.

CAPE CANAVERAL, Fla.—On the sands of Cape Canaveral and the surrounding coastal area of central Florida, where the United States is fighting its battle for space conquest, it is a common thing to shiver in the morning and swelter in mid-afternoon.

Such unusual weather conditions create a special air conditioning problem for the government's large-scale family housing project at Patrick Air Force Base, the administrative center for Canaveral.

SOLUTION WAS 680 UNITS WITH HEAT PUMPS

A solution to the problem came with the purchase of 680 central air conditioning units, complete with heat pump, from Amana Refrigeration, Inc.

Installation of the model PKH-224-1 units was made by Southern Construction Co., the prime contractor on the housing project, following thorough testing by Canaveral's base contracting officer. Each unit cools well as heats the two to four-bedroom homes, handling temperature spreads from 79 to 95° in the summer, and from 30 to 91° in the winter, according to Amana.

"Being of heat pump design, the units pump either hot or cold air through interior ductwork by simply reversing the refrigerant flow," it was noted. "Thermostatically regulated temperatures, and even air distribution realized by a duct opening in each room, help maintain interior comfort.

"The system works this way: air is sucked in from the rooms, cooled (or heated) by the unit on the roof, and re-distributed throughout the rooms via ductwork and individual room registers. As an economy measure, the ducts in the Patrick Air Force project have been left exposed."

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C. I. T. Credit Corp. Announces Deferred First Payment Plan on Residential Heating, Cooling

NEW YORK CITY — Joseph C. Ekkers, head of the special products department of Universal C.I.T. Credit Corp., announced that his firm has expanded its property improvement financing services to include a "deferred first payment plan" for central heating and central air conditioning installations in homes.

If a homeowner puts in a central air conditioning system in the winter, he can wait five months after completion of the job before paying the first instalment, provided he makes the payment by June 1.

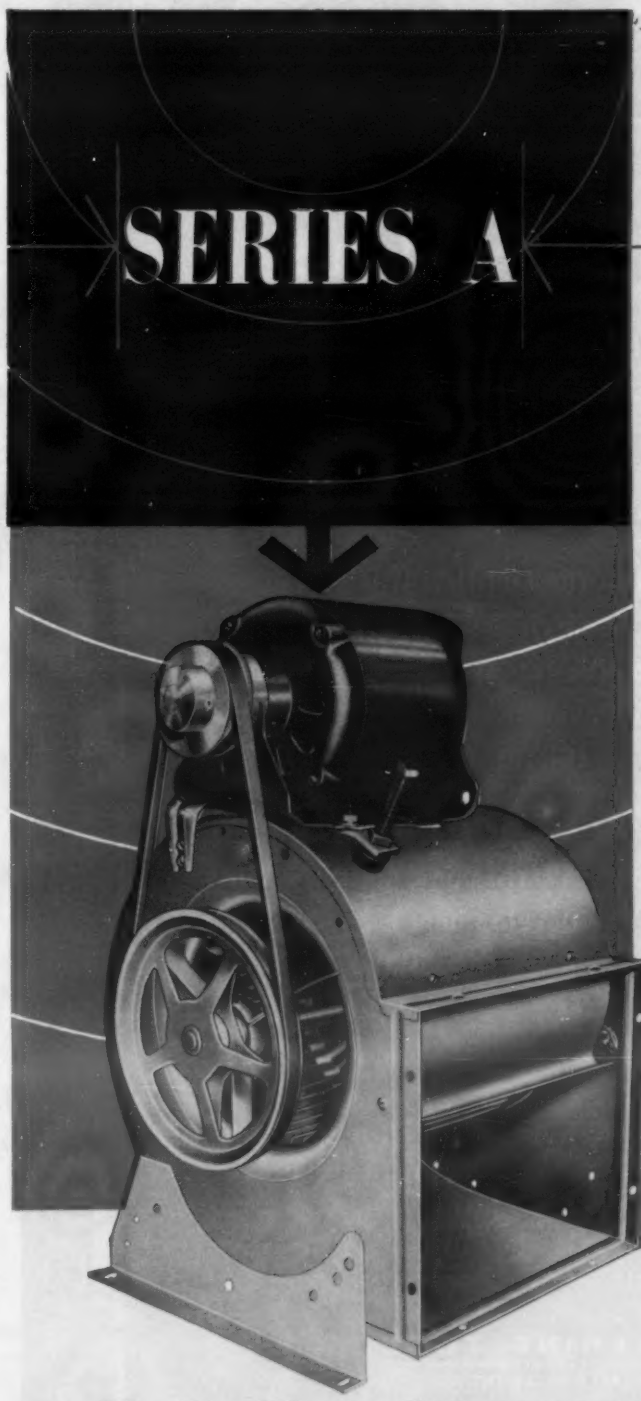
The first payment on furnaces and other central heating equipment installed in the summer can likewise be deferred for five months but must be made not later than Dec. 1.

Ekkers said the new plan was inaugurated to help homeowners take advantage of low off-season rates.

Malcolm C. Beard Dies at Age 74

GARWOOD, N. J.—Malcolm C. Beard, 74, former sales manager of Thatcher Furnace Co., died at his home in Brooklyn.

Before becoming sales manager of the firm in 1944, Beard represented Thatcher in Brooklyn and Long Island for many years. He had been associated with the heating and cooling equipment manufacturer for 42 years at his retirement in 1958.



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Series A blower assemblies are recommended for warm air furnaces, central air conditioning systems, evaporative coolers, cooling towers, and remote condensers.

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Other plants in Kitchener, Ont., Can., and Irwindale, Calif.

Fedders Expands Dealer-Trip Program Because of Record Rate of Retail Sales

MASPETH, N. Y. — The record rate of retail sales of Fedders equipment so far this season has necessitated expansion of the company's dealer-trip program, according to U. V. Muscio, executive vice president.

TRIPS TO 3 CONTINENTS

Three separate trips to three continents were announced by Fedders for its dealers of room and central air conditioners and heating equipment. Sites for trips will be Israel, Paris, and Grand Bahama Island.

"We saw very early," Muscio said, "that the arrangements we were planning would not be adequate for the number of dealers that would qualify."

The announcement said the program "represents the first time that any company has taken its dealer group to the continent of Asia; the first time jet planes will be used for Trans-Atlantic charter; the first time a firm has offered three separate trips, each involving an entire vacation package; and the first time an island has been named for an appliance manufacturer."

Muscio explained that the last point referred to the fact that the name of the Grand Bahama Island has officially been changed to Fedders Island from Sept. 12 to Nov. 25, the duration of the trip.

It is expected that approximately 1,000 will take the trip to Israel, about the same number to Paris, and some 4,000 to "Fedders Island." This would represent the largest number ever to participate in a travel incentive program, according to Fedders.

The trip to Israel will involve five days at the Accadia hotel near Tel Aviv, and five more days at the King David hotel, Jerusalem.

At the King David hotel, Jerusalem, tours have been arranged to Haifa and ancient Acre, to Nazareth and the Sea of Galilee as well as to the Shrines of Jerusalem.

In Paris, two hotels will accommodate the dealers, the Grande and the Claridge. In this city arrangements have been made for the dealers to spend a night at the Folies Bergere, another at the Lido, another at the Paris Opera and yet another at the Grand Guignol, the famous horror show. A cruise down the Seine is just one of the daytime activities.

The Israel trip will last more than 12 days. One feature of the trip will be an overnight stopover in Brussels, a free port. The Paris vacation will last nine days. The Israel and Paris trips, which begin in October, will leave from New York.

PURE JET AIRCRAFT

The highlight of the two overseas jaunts is that all of the Trans-Atlantic travel will be by the pure jet aircraft of Air France Annel Al Airlines.

At "Fedders Island," all of the facilities of the Grand Bahama Club, a large resort recently opened at a cost of $10 million, are being turned over to the dealers. Entertainment will be flown in from the United States for nightly floor shows to be headed by a top comedian. First run movies will also be shown every night.

The Fedders "Treasure Hunt," last held in Nassau, will be resumed with prize money being given to dealer winners. Casino nights will give the dealers an opportunity to win "money" to be used in "purchasing" valuable gifts at auction. Total of $50,000 will be given away in prizes at "Fedders Island."

The Fedders trip program for 1960 represents its tenth incentive promotion. The first trip saw 91 dealers go to Bermuda. Since then a total of 22,000 people have been taken to such overseas places as the French Riviera, Italy, Mexico, Nassau, Jamaica, and the Dominican Republic.

TO OUR BUSINESS FRIENDS

This is the age of breakthrough—the era of new frontiers.

And it is a time of challenge to American industry to meet the demands which call for fresh, new thinking.

Wolverine Tube is proud of the fact that it is pacing the industry. The research and development program, for example, has the tubing industry's most complete facilities devoted exclusively to probing into and improving the technology of tube manufacture.

From this continuing program have come improvements to existing products and the development of entirely new ones. And with these facilities—Wolverine's skilled technicians are extruding tube and shapes from such metals as zirconium, columbium, titanium, tantalum, molybdenum and others.

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Heat Controller Names Schultz

JACKSON, Mich. — Appointment of Kenneth O. Schultz as sales manager of dehumidifiers and central air conditioner departments of Heat Controller, Inc., has been announced by J. A. Knight, president.

K. O. Schultz

Schultz will direct the merchandising of the "Comfort-Aire" electric dehumidifiers, portable window air conditioners, and all central air conditioning and heat pumps. He was formerly associated for several years with Revco, Inc.

Conditioned Kennel Proposal Puts Official 'In the Dog House'

WASHINGTON, D. C.—George P. Larrick, commissioner of the Food & Drug Administration, recently found himself "in the dog house" with senators over the cost of a proposed kennel which would be air conditioned.

Preliminary estimates showed it would cost $2,000,000 to build a tile-lined, air conditioned kennel to house some 720 test dogs, Larrick informed a Senate Appropriations subcommittee.

Sen. Gordon Allott (R., Colo.) indicated he couldn't understand why it cost only $16 a square foot to build a modern air conditioned office building for humans, but "you want to spend $30 a square foot for dogs."

Noting that the proposed kennel had been patterned after one built by the National Institutes of Health, Larrick explained that there must be control over humidity and temperature in the kennel and it must be free of contamination.

Offers Blower Booklet

DAYTON—A 2-page booklet describing its standard line of blower assemblies, blower wheels, and parts is now available from Blower Div., The Lau Blower Co., 2027 Home Ave., Dayton 7, Ohio.

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Mild Climate Research Program

NWAHACA Launches Project To Investigate Eight Problems of Home Comfort In High-Low Temperature, Low Humidity Areas

CLEVELAND — Providing home comfort in dry, high altitude areas—those with high day and low night temperatures and low rainfall and humidity—is the target of a new research project by the National Warm Air Heating & Air Conditioning Association.

Purpose of this investigation is to provide dealer-contractors and manufacturers throughout the nation, with scientific information on those areas of the U.S. where extremes in temperatures, and other climatic conditions are experienced on a changing day-to-day basis.

Identified as the "Mild Climate Research Program," the first phase of this research inquiry will explore eight problems considered most susceptible to immediate investigation. Later, five additional matters will be examined.

Herbert T. Gilkey, technical director of NWAHACA, said it is contemplated that the investigations will be conducted in conjunction with a college or university on the west coast inasmuch as the area between the Sierra Nevada mountains of California and the Pacific Ocean contains all of the various climatic conditions representative of the individual problems included in the testing project.

A summary of the eight areas of inquiry are as follows, according to Gilkey:

"1. Control of equipment—heating and cooling—at partial load conditions.

"Unlike other geographical areas of the nation, load conditions in mild climates, as on the west coast, reflect wide temperature variations daily during periods of high load in both summer and winter.

"In colder climates, warm air heating systems are expected to operate at 50% load, or higher, during the two or three coldest months and from 10 to 60% of load during the remainder of the heating season.

"However, in mild climate areas, heating needs will require the system to operate against a load of from only 10 to 30% of its design value for weeks at a time.

"Operating experience in severe or mild climate has shown the difficulty of maintaining even temperature control under light load. Thus, the partial load condition problems to be studied will include the following:

"Methods of supplying heat, either more frequently or in uniform reduced quantities during periods of light heating load.

"Maintaining constant, or nearly constant, blower operation during the heating season.

"Providing more uniform heat removal and dehumidification during periods of light cooling loads.

"2. Performance comparison of distribution systems.

"Three types of ducted distribution systems are commonly used in crawl-space homes in mild climate areas. They are: the radial ducted perimeter system, the crawl-space plenum system, or the high, inside-wall outlet system.

"All are used for both winter heating and summer air conditioning, and all systems have one central return-air intake. One tests house will be used to study the performance of all three systems.

"3. Crawl space moisture problems.

"FHA allows the use of the entire crawl-space of a house to be used as a plenum, provided the vents are closable and the crawl-space is moisture-proofed.

"There are two types of systems commonly used when the entire crawl-space is used as a plenum.

"In one of these, the crawl-space plenum system, warm air is discharged into the entire crawl-space and is directed into the rooms above through diffusers. The heated crawl-space keeps the floors warm.

"In the other type of system, a duct system is located within the crawl space, but some warm air is deliberately discharged into the crawl space to warm the floors above.

"Obviously when warm air is put into a crawl-space, this area must be sealed off from the outdoors.

"There is a need for information on what happens in a crawl-space when no air, heated or otherwise, is being directly introduced.

"To be investigated are the moisture and temperature conditions within crawl-spaces in the absence of circulated air, and the effect on construction design, moisture-proofing and comfort conditions.

"4. Insulation of crawl-space ductwork.

"Usual requirements are that ducts located in vented crawl spaces must be insulated. But, in the opinion of designers in mild climate areas, this may

DRAFTING RECOMMENDATIONS for NWAHACA west coast research program are (l. to r.) Harold A. MacIntosh, Cam-Stat, Inc.; Arthur Horne, Day & Night Mfg. Co.; Leo Hungerford, Utility Appliance Corp.; Roland R. Taylor, Fraser & Johnston Co.; George Aronowsky, Tuck-Aire Furnace Co.; Herbert T. Gilkey, technical service director, NWAHACA; Robert L. Boyer, Minneapolis-Honeywell Regulator Co.; Russell Davis, San Francisco FHA; Jack Wolff, General Controls Co.; and Dar Knowles, Warm Air Heating Institute of Northern California.

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work against best comfort performance. Reason is that heat loss from insulated ducts is small, and, in the absence of strong winds, this heat, although limited would serve to warm the floors of the living space above.

"Factors affecting the insulation requirements of such ducts are to be investigated.

"5. Soil conditions. The use of perimeter-edge insulation of heated concrete slab floors, has been questioned by FHA and some industry engineers in mild climate areas.

"Measurements of soil temperatures and moisture content under, and around, a crawl-space house is expected to reveal pertinent data concerning edge insulation requirements.

"6. Effect of air velocity leaving the registers.

"Reports of drafts with air moving across the floor toward the warm air registers, on perimeter systems have been received from mild climate areas. To be investigated are construction and systems characteristics identifiable with mild climate practices that may be contributing to such a condition.

7. Return air ducts.

"A characteristic of mild climate systems design is to locate the return-air intakes and ducting as close to the return plenum of the furnace as possible.

"Usually these air returns are of a small capacity. As a result, factors affecting these air returns, their location, whether they should be located high or low, and methods of reducing sound transmission are to be investigated.

"8. Selecting the proper system.

"Out of this investigation will come information on factors which affect system selection in mild climate areas.

"This information will be incorporated in the association's manuals and will include the factors to be considered in system selection."

The above eight areas of inquiry developed by a special committee of the association who met in San Francisco. Present were:

Roland R. Taylor, Fraser & Johnston Co.; Robert Boyer, Minneapolis-Honeywell Regulator Co.; Art Horne, Day & Night Mfg. Co.; Harold A. MacIntosh, Cam-Stat, Inc.; and Jack Wolff, General Controls Co., all members of NWAHACA.

Non-members who attended and participated in the conference were: George Aronowsky, Tuck-Aire Co.; Leo Hungerford, Utility Appliance Corp.; and Dar Knowles, then with the Warm Air Heating Institute of Northern California.

Also in attendance, as a guest of the committee, was Russell Davis of the Federal Housing Administration of San Francisco.

The mild climate investigation is an outgrowth of action taken by the board of trustees of the association during its annual meeting last December.

At that time the trustees authorized, in cooperation with the association's Research Advisory Council, the exploration and establishing of this research study. The recommendation was made to the Finance Committee of the association that an expenditure of $10,000 be appropriated to conduct the program over the next 18 months.

In Milwaukee

Water Charge on Non-Recirculating Bigger Air Conditioners Continues

MILWAUKEE — The state public service commission reaffirmed a two-year-old order authorizing a special charge for water used in Milwaukee air conditioners which do not reuse the water.

The new commission order, however, exempts from the charge all such conditioners installed before Feb. 17, 1958, the date of the commission's original approval. Those conditioners installed after that date are subject to the $10 per ton per year charge.

The surcharge applies only to air conditioners of more than 3-ton capacity not equipped with water conserving devices.

Harry G. Slater, deputy city attorney, said the order would be put into effect at once by the city water department.

However, Slater said that before it could be determined who was subject to the surcharge, a survey must be made to find out which units have been installed since the original order. The question of whether the city will try to collect the $10 fees retroactively to Feb. 17, 1958, will be discussed with the common council and the PSC, Slater said.

Water consulting engineers have estimated that about 1,000 Milwaukee water customers have air conditioning systems in which the water is not recirculated.

Canadians Proud of Glass Building But Hesitate on Air Conditioning

TORONTO, Ont., Can.—Public works officials are proud of the modern $13 million William Lyon Mackenzie building just opened officially here.

They hedged, however, on the touchy subject of air conditioning for the new glass-walled landmark on Adelaide St. E.

According to some commercial architects, the new federal building with its wide expanses of glass will prove almost unliveable through a Toronto summer without air conditioning.

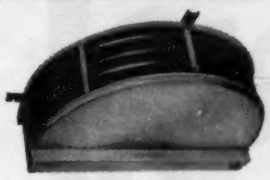
Dubbed "Little Ottawa," the 16-story aluminum - and - glass structure is designed to permit air conditioning at a later date "if required." At present, the building is equipped only for forced ventilation.

Equipment for full air conditioning of the new building is estimated at upwards of $300,000. What makes officials pause, however, is the thought of all the government buildings that do not have air conditioning and will begin to demand it once it is started.

The new structure was begun in mid-1957 from designs approved in mid-1956. It is intended to house a number of scattered federal departments, including post office, income tax, national film board, veterans' affairs, defense production, and meteorological.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

TENNEY



half round...

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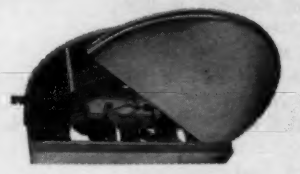

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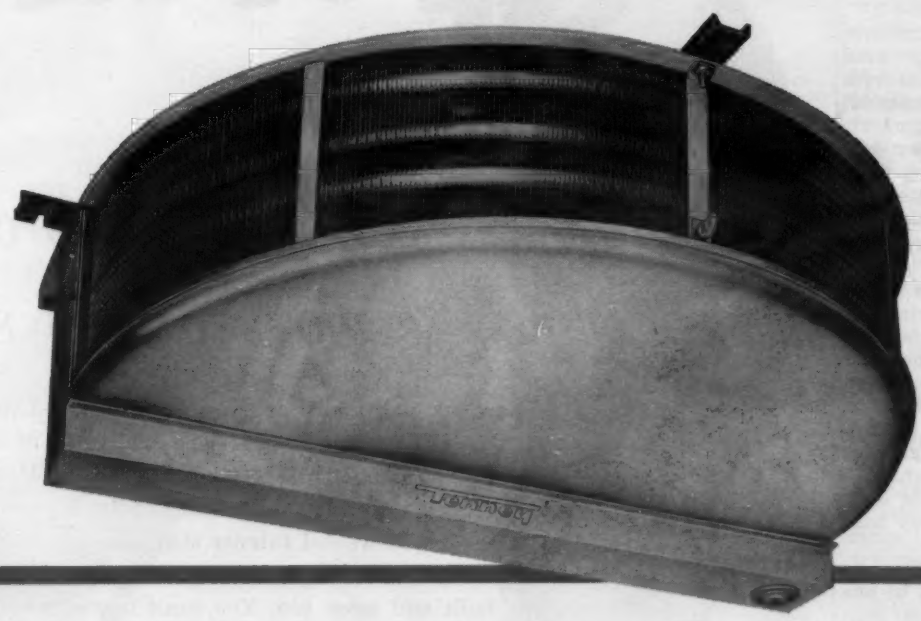

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Write for Bulletin 104-54

Engineers and Manufacturers of Refrigeration and Environmental Equipment

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Instruments (*More Than $1,000 Worth*) Win Arguments and Respect for Serviceman

By Frank J. Versagi

KALAMAZOO, Mich. — Probably one of the toughest problems faced by installing contractors and servicemen is convincing an electric utility that it is supplying insufficient voltage to a specific installation.

"Now when I call and complain of low voltage, there are no questions asked," enthuses Jerry Wead, owner of A-1 Refrigeration Sales & Service here. "They know I have a chart to back up my complaint."

The chart Wead speaks of is the record of voltage conditions made by one of his recording voltmeters installed on the job for a day or two. With the chart, he can tell the ranges through which the voltage fluctuated as well as at what times the high and low points occurred.

And he can determine whether the low voltage is due to overloaded lines in the structure (which is what the utility always hopes is the case) or actually is due to insufficient voltage supplied by the power company.

Suppliers Know That He Knows What He Is Talking About

Wead recalls another instance when charts of another kind won an argument for him with a major supplier of commercial refrigerated display equipment.

He was having difficulty getting claimed performance from a particular case. When he called the supplier, the discussion centered around his changing of a line size recommended in the company's literature. When Wead reported his recorded findings on pressures, the company decided the difficulty might be in something other than an installation error.

"Actually, the whole tone of the conversation changed as soon as I mentioned the charts," Wead says, "and a couple days later there was a factory man up here with me."

This power of instruments to help win arguments may be one reason why Wead's four-man service operation makes use of more than $1,000 worth of instruments — almost double that amount, if you count the three G-E electronic leak detectors.

(The day the NEWS visited A-1 Refrigeration a competitor came in and borrowed one of the leak detectors for a couple hours! He also consulted with Wead on a semi-hermetic compressor which had broken its valve plate: "The pieces were nowhere in the compressor.")

Instruments Simplify Diagnosis

The use of instruments in diagnosis makes the whole job easier, more assured, Wead feels, and his feeling is seconded by Keith Paul, his senior serviceman who adds "When we can show a customer that his help opened the walk-in door 17 times last night and that at 8:30, 9:25, and 11:15 they left the door open for quite a spell, he must agree that his estimate of 'three or four' openings a night is in error."

Once the problems is recognized as a problem by the owner, it is easier to get him to agree to whatever must be done to give him the box conditions he wants.

Wead, who studied at Milwaukee School of Engineering and "was lucky enough to work at refrigeration" during his service stint, makes it a point to keep progressive. He takes literally the saying that one can't stand still; he must go forward or backward.

"Instruments are a major part of progress, but not the whole picture," he says. "I take trips to the plants of manufacturers of units, components, supplies. I make it a point to belong to trade associations. I and three of my men subscribe to the NEWS. We get as much manufacturer's literature as we can and we *read* it.

(Indeed they do. Wead and two of his men pointed out to the technical editor of the NEWS what seem to be several glaring contradictions, or at least inconsistencies in the recommendations of several suppliers on identical points of procedure. These will be treated of in later NEWS articles.)

Wead tends to be individualistic and is not afraid to argue his beliefs against "authoritative" sources. An example: he is against service contracts for an unusual reason. "Service contracts will cost my customer more money than service on call only."

Contracts are designed to protect the contractor, the serviceman, he feels. And in a couple of studies he has determined that the service bill for three years of some of his better customers was lower than would have been the cost of contract service for those three years.

If this seems to indicate that Wead is not concerned primarily with money, the indication is apparently correct.

Another example: many installers of supermarkets omit the time-consuming deep evacuation recommended before final charging of the systems, their idea being to cut this cost from their job in the hope that there will be no real adverse effects. Wead, very matter of fact, holds "There is plenty of time on a large installation to make this evacuation. So why omit it?"

A-1 has taken a crack at servicing automotive air conditioning, but Wead thinks that any more of it he will do only through garages. "People seem willing to pay high prices to a garage but are reluctant to pay the same prices for 'just air conditioner service' done elsewhere. They have no idea of the work which goes into servicing one of these units."

Providing service in a 25-mile radius ("50 miles to some accounts"), Wead charges $4.50 an hour plus travel time—and plus 10 cents per mile for out-of-city calls. He charges a time-and-a-half premium for night calls to "habitual offenders."

Gross income, 90% of it from service, falls in the $100-150,000 bracket.

Special Offer...

this valuable Isotron® cylinder truck takes the work out of service calls!

Here it is—from Pennsalt and your ISOTRON refrigerants wholesaler—the handiest time- and labor-saving tool you've ever seen! This specially designed truck rolls smooth and easy on permanently lubricated wheels . . . all-welded tubular steel construction . . . semi-pneumatic tires . . . ready for use. It's ruggedly built and *safer*, too. You can't buy this useful truck anywhere!

Simply save the valuable coupon which is attached to each cylinder of ISOTRON Refrigerants 12, 22, and 114. Present coupons to your ISOTRON wholesaler to get your cylinder truck. There's no limit to the number of trucks you can get, but this offer will be withdrawn when supply is exhausted.

Look for the Cylinder Truck tags on every cylinder of ISOTRON. And notice the factory-sealed valve. It assures you of extra-purity, extra-dryness and guaranteed weight in every ISOTRON cylinder you buy. See your ISOTRON wholesaler tomorrow. ISOTRON Dept. 331, Pennsalt Chemicals Corporation, Three Penn Center, Philadelphia 2, Pa.

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FIRST to offer cylinder stands, and now . . .

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Drayer-Hanson Overseas Agent Adds Holland To European Territory

LOS ANGELES — Climate Control International, Inc. here, sales-agent group handling Drayer-Hanson air conditioning products overseas, has swelled its representation within the Continent of Europe to four-country representation, according to CCI's president, Barry Benson.

Newest country, and organization, to join the international distribution network is Holland, where new representative, Technische Handelsondernemning Vanadel, N.V. has recently been appointed by Benson.

Principal of the firm is Adolph France. Address is Nieuw Mathenesserstraat 33, Postbus 6049, Rotterdam, The Netherlands.

Deadlines: April 18 and 27

Pakistan Government Seeking Bids On Refrigeration, Cooling Projects

WASHINGTON, D. C. — The government of Pakistan is currently seeking bids on a refrigeration and an air conditioning project, the U. S. Department of Commerce's Business and Defense Services Administration reports.

REFRIGERATION

One project is an ice making and fish cold storage plant including two ammonia compressors of 10 tons' capacity each, electric motors, starters, atmospheric condensers, receiver, cold diffusers, motors for diffusers, starters, centrifugal water pumps, etc. Bid deadline is April 18.

Detailed specifications may be obtained from Miss Eleanor Renwick, Office of the Commercial Secretary, Embassy of Pakistan, 2315 Massachusetts Avenue, N.W., Washington 8, D. C.

AIR CONDITIONING

The other project is to supply and install 20 1-hp. or 14 1½-hp. window type room air conditioners at Khulna, East Pakistan. Last day for submitting bids is April 27.

Bidding instructions and specifications are available for review on loan from the Trade Development Div., Bureau of Foreign Commerce, U.S. Dept. of Commerce, Washington 25, D. C.

Tyler Finds Foreign Plant Has Actually Increased Domestic Output

NILES, Mich.—"It has been our contention that the setting up of a foreign plant increases, rather than decreases our domestic output. This is contrary to the fears expressed by some that such American activity abroad will have a harmful effect on our home economy."

J. R. Alvarez, president of Tyler International Div. of Tyler Refrigeration Corp., told the NEWS that their experience after building a plant in Germany has confirmed his expectations.

"Necessarily," Alvarez continued, "our German plant cannot produce the full line of cases which we produce here. Our customers become accustomed to our limited line, learn to appreciate the greater quality of our goods compared to local competition, and they order the full line of cases from us. Our records clearly show that our sales to Germany from the Niles plant have increased since we began selling the German-made line."

American companies can compete against local competition, in spite of higher prices on the American product, because the quality is definitely superior in most instances, the Tyler executive feels. "Our cases just stand up longer under actual use," he concluded.

FOR SERVICEMEN

Copeland Names Mozley Vice President of Overseas Operations

SIDNEY, Ohio—Copeland Refrigeration Corp. has named Raymond G. Mozley to the position of vice president, Overseas Operations.

R. G. Mozley

Mozley has been associated with Copeland since 1952 as assistant to the vice president of engineering, chief laboratory engineer, and chief application engineer. In addition to his newly-defined responsibilities, Mozley will continue in his capacity as chief application engineer.

Mozley has recently completed a three-month-long trip, visiting 12 countries in Europe and South America, establishing programs for foreign manufacturers to produce and market Copeland products overseas.

ICA Missions Seek Industry Equipment Catalogs from U. S.

WASHINGTON, D. C.—Four International Cooperation Administration missions abroad are seeking catalogs on industry equipment, the U. S. Department of Commerce Business and Defense Services Administration reports.

The operations mission to Equador at Quito wants catalogs of refrigeration equipment. The technical cooperation mission to India at New Delhi seeks air conditioning and refrigeration catalogs.

The operations mission to Vietnam at Saigon wants air conditioning, refrigeration, and restaurant and cafeteria equipment catalogs. The operations mission to Yugoslavia, c/o American Embassy, APO 293, New York, N. Y., wants air conditioning, heating, and refrigeration equipment catalogs.

For Your Reprint Copy

"Short, Short Course in Air Conditioning Fundamentals." By D. C. Schaffer. Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
Only 25¢ each.

Airtemp Appoints 4 New Distributors

DAYTON—Airtemp Div. of Chrysler Corp. has further expanded its national, independent distribution system with the appointment of four new distributors.

Joseph B. Ogden, vice president of sales, announced the new distributors as W. R. Millar Co., Minneapolis; Walloch Wholesale, Inc., Little Rock, Ark.; Air Conditioning, Inc., Salt Lake City; and Refrigerative Supply, Inc., Portland, Ore.

Ogden said Air Conditioning, Inc. would handle the entire Chrsyler product line and Refrigerative Supply would carry the packaged heating and cooling products manufactured by Chrysler. W. R. Millar Co. and Walloch Wholesale will wholesale Airtemp room air conditioners.

W. R. Millar is the owner of the Minneapolis business, which is in its first year. His territory will include all of Minnesota and parts of Wisconsin, Iowa, and Kansas.

Freddy J. Walloch is president of the seven-year-old Walloch Wholesale, and his distributorship will include the Little Rock, Hot Springs, Pine Bluff, and Batesville trading areas.

Air Conditioning, Inc. is headed by Earl E. Olson, who used to handle Chrysler products as a dealer and opened his own distributorship in Salt Lake City this year.

His territory will include western Utah and northeastern Nevada.

Refrigerative Supply is a 26-year-old business and its president is W. J. Hieber. Its territory includes Oregon, Washington, Idaho, Alaska, and a part of Montana.

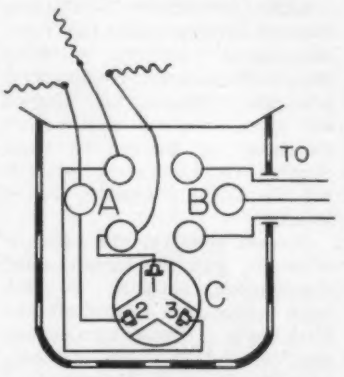
Chattering Thermostats Guilty?-- 35 Compressors Burn Out In 2 Years

EVANSVILLE, Ind.—In this city there is a church with 150 tons of packaged air conditioning utilizing 25 compressors. The first year of operation, 20 of the motor compressors burned out; the second year 15 units burned out.

The motors, in this case, were three-phase. As usual, two of the phases were protected against overload so that theoretically the heaters would cut the units out in case of trouble. In spite of this protection, however, the compressors continued to fail, and a couple of units blew their refrigerant charge.

Investigation finally revealed that the thermostats controlling the units were "chattering." Either through tampering, as claimed by the control supplier, or for some other reason, the thermostats had lost their calibration and had almost no differential between on and off cycles. The settings were such that they set up subsequent chattering in the contactors whose points arced and sparked until they welded shut. With the contacts welded shut, it was impossible for the overload protectors to drop the units off the line.

One protection even for this unexpected set of circumstances is to Y-connect the overload protectors and tie the phases together outside, rather than inside the compressor, according to Bendix-Westinghouse engineers with whom the NEWS discussed the church experience.



1 H.P. 1½ H.P. 2 H.P. 3 PHASE
TWO CYLINDER
A—"Y" CONNECTION
B—LINE CONNECTION
C—O.L.P. SWITCH

Y-connected overload protects against single-phasing.

(No Bendix-Westinghouse equipment was involved in the installation, but one of the company's engineers was informally brought into the investigation of the burnouts through his membership in the church.)

"A temperature-operated device, the Y-connected protector has a heater coil on each phase and makes it impossible for the unit to single-phase," they stated. This protection makes possible the elimination of a separate starter with heater coils in it, although some codes still require the installation of such a starter even when the B-W device is used, according to the engineers.

"While there has been some speculation that transient voltages caused by chattering thermostats have caused burnouts of single phase motor-compressors, our tests and experience have indicated that this is not the case," they concluded.

Group Reportedly Seeking Working Control of Glen Alden

NEW YORK CITY—A group headed by Mishulam Riklis, president and chief executive officer of B. T. L. Corp., reportedly has arranged to acquire working control of Glen Alden Corp. from the Albert List interests.

According to the report, the deal is understood to involve more than 1,500,000 shares of Glen Alden. List and members of his family are said to have owned directly and indirectly 2,068,707 shares, or 37% of Glen Alden's stock.

Glen Alden is the parent company of The Mathes Co., Marble Falls, Texas, manufacturer of air conditioning equipment and heat pump. Glen Alden also has a variety of other interests.

B. T. L. Corp. is the name assumed in February by Butler Brothers, which recently sold its retail stores to the City Products Corp. Last month, B. T. L. acquired from the H. L. Green Co. 72% of the common stock and 23% of the second preferred stock of the United States Corp.

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for all refrigerants from 1/4 to 200 tons

SOLENOID VALVES
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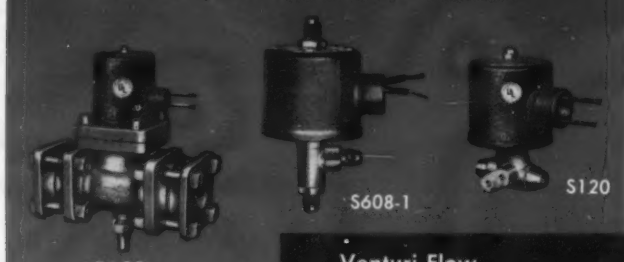

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STRAINERS • DISTRIBUTORS
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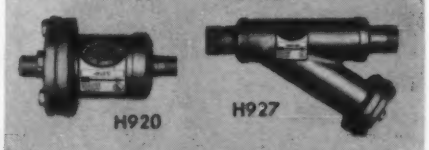
Sizes & Type for every application



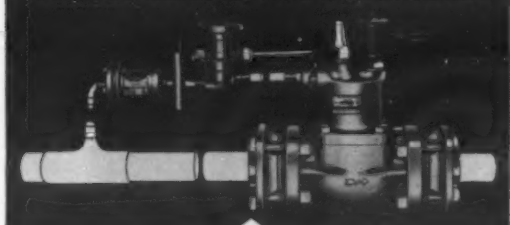
Venturi-Flow DISTRIBUTORS

Float SWITCHES
for trouble free liquid level control

wide application . . . low pressure drop . . . any position . . . one-piece construction . . . no nozzles

EVAPORATOR PRESSURE REGULATORS
Sizes & Types for every application and refrigerant

P.O.S. PILOT OPERATED THERMO® VALVE
with integral solenoid stop . . . for larger installations



Use and Specify ALCO Controls
the one complete line designed and engineered for efficient trouble free performance.

See your Alco Wholesaler—Write for Specification Details

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• BUY QUALITY
• BUY ALCO

ALCO VALVE CO.
853 KINGSLAND AVE. • ST. LOUIS 5, MO.

8217

The one complete line of refrigerant controls: Thermostatic Expansion Valves* Refrigerant Distributors Solenoid Valves * Suction Line Regulators * Flooded Evaporator Controls and Reversing Valves

C. L. Peterson

Fred Kaiser

Karl W. Schick

T. S. Carley

Honeywell Appoints 4 Vice Presidents

MINNEAPOLIS — Three veteran sales officials of Minneapolis-Honeywell Regulator Co. have been appointed to newly-created positions of vice presidents of sales regions, and a fourth has been named a divisional vice president.

Appointed vice presidents of their sales regions are Fred Kaiser, manager of the eastern region, with headquarters in New York City; C. L. Peterson, manager of the central region, with headquarters in Cleveland: and T. S. Carley, manager of the midwest region, with headquarters in Chicago.

Karl W. Schick has been named vice president of the company's Residential Div., with headquarters in Minneapolis.

Each of the men has held a variety of sales and administrative posts, and all have had long careers with Honeywell, said President Paul B. Wishart in announcing the promotions.

Limbach Acquires Pittsburgh Plumbing, Heating Firm

PITTSBURGH—Limbach Co., mechanical and metals contractor, announced that it has acquired the George H. Soffel Co., one of Pittsburgh's oldest plumbing and heating firms.

Scott Limbach, vice president-Mechanical Div., said, "The integration of the Soffel Co. with our Pittsburgh Mechanical Dept. will broaden our sales and production base in a growing market area."

The current Soffel plumbing and heating backlog is said to exceed $5½ million. These projects include the new Research Laboratory for Koppers Co., the Kaufmann Department Store at Monroeville, and five district hospital projects.

The Soffel Co. was founded in 1900 and has been continuously managed by members of the founding family. Annual volume in recent years has been approximately $3,000,000. John W. Soffel, retiring president, will continue as a consultant to Limbach Co.

"Pittsburgh - headquartered Limbach Co. is a growing construction organization with branches in Columbus and Cincinnati, as well as Pittsburgh," it was noted. "Annual sales are approximately $30,000,000."

Rochester BBB Reports Growing Number Of Complaints Against Heating Firms

ROCHESTER, N. Y. — Complaints are mounting against some heating equipment salesmen in the area, the Rochester Better Business Bureau has reported.

Manager Harry C. Reynolds said the complaints are limited to four or five concerns. The amount of money they obtain by deception is "tremendous," he claimed.

"Fear is being used to bilk many widows, the elderly, and incompetent," Reynolds asserted. "The door-to-door salesmen have been known to convince their victims that an old conversion unit is in dangerous condition.

"Often, they pose as or imply that they're city or official investigators," he went on. Describing some of the practices, he said units have been painted on the outside without any corrective work, "at prices these people can ill afford to pay."

Louis Putze Honored

CHICAGO — Louis Putze, president of Controls Co. of America, has been elected national treasurer of the Young Presidents' Organization, it was announced by John D. Foskett, national president, at the 10th annual "University for Presidents" held at the Fontainebleau, Miami Beach, Fla.

Region X To Host International ASHRAE Meeting

SEATTLE—The international convention of the American Society of Heating, Refrigerating & Air-Conditioning Engineers at Vancouver, British Columbia, will be hosted by the chapters in Region X, on Monday, Tuesday, and Wednesday, June 13-15.

Charles L. Hall, ASHRAE director for Region X, reports the members of British Columbia Chapter at Vancouver taking a lead in preparations.

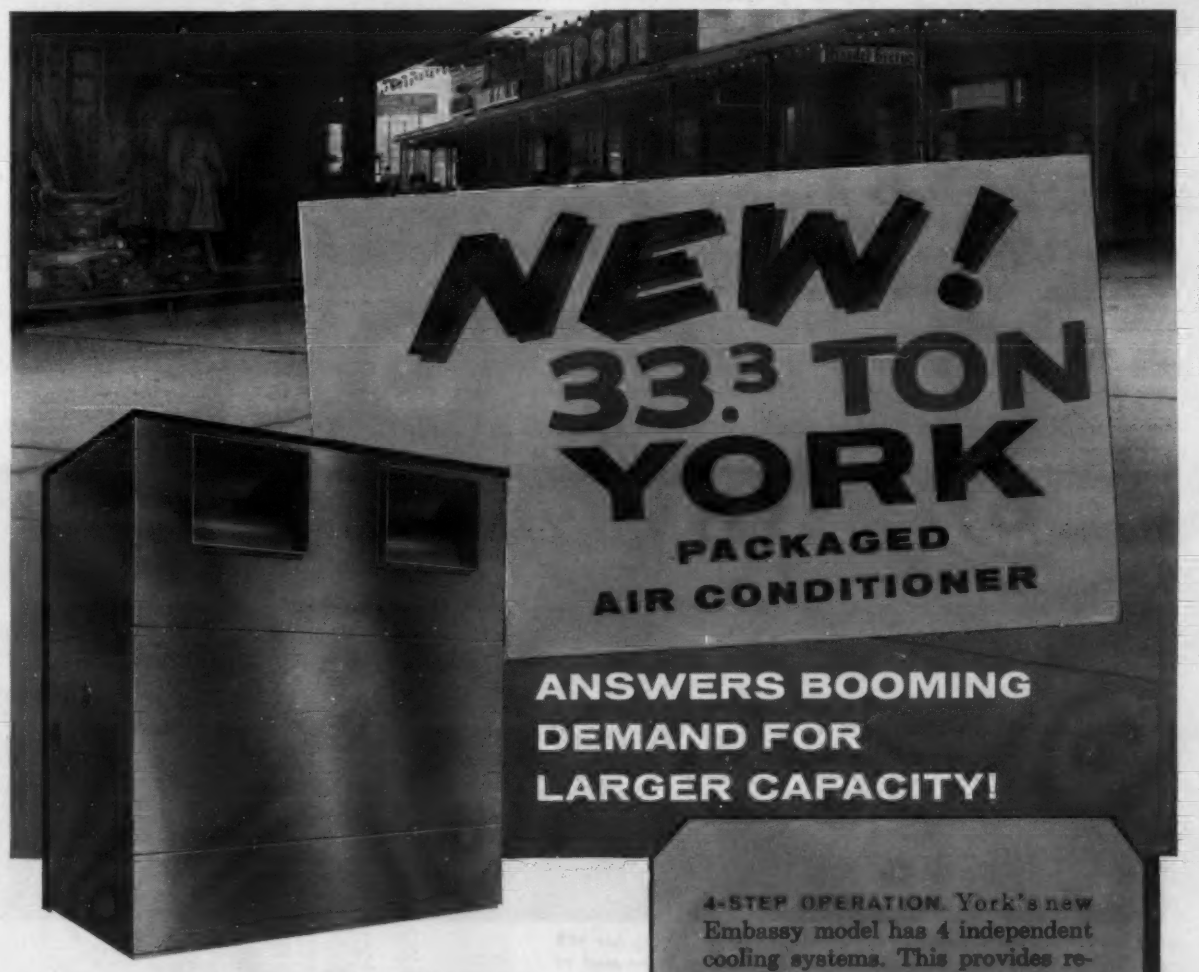
There are 11 chapters in Region X, located in Arizona, British Columbia, California, Oregon, and Washington. The chapters are, in alphabetical order of chapter names:

British Columbia at Vancouver, Central Arizona at Phoenix, Golden Gate at San Francisco, Inland Empire at Spokane, Oregon at Portland, Puget Sound at Seattle, Sacramento Valley at Sacramento, San Diego at San Diego, San Joaquin Valley at Fresno, Southern California at Los Angeles, and Tucson at Tucson.

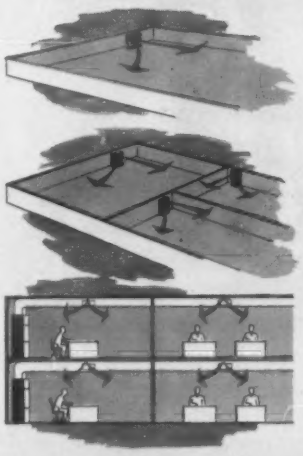
U. S. Embassy In Peru Is Second Building with Central Heating, Cooling

LIMA, Peru — The modern new U. S. Embassy building here is the second building in Lima to be complete with air conditioning and central heating, it was reported.

Embassy departments, which have been housed in various buildings in Lima, recently completed moving into the new structure.



Easily Adapts to Any Cooling Need!



Zone Cooling
A single Embassy without ductwork easily cools large open areas.

Room by Room
Individual Embassys for large rooms. Central unit with ductwork for small rooms.

Floor by Floor
One or more Embassys on each floor with simple ductwork to partitioned areas.

Other Embassy Models from 3 to 25 ton capacity

4-STEP OPERATION. York's new Embassy model has 4 independent cooling systems. This provides reserve systems which automatically swing into action on hottest days. Customer is able to maintain desired comfort level under varying load requirements...yet pays only for the cooling he needs.

50% MORE HUMIDITY REMOVAL! York's Exclusive Cooling Maze Coils force air to twist, turn, and ricochet around staggered tubes and rippled fins. Excess moisture disappears.

MINIMUM INSTALLATION COST! Self-contained units can be placed anywhere. No need to overhaul the building or interrupt business operation. Additional units can be added as needed.

York Puts More Into Every Unit
So You Get More Out of It

YORK
YORK CORP., SUBSIDIARY OF BORG-WARNER CORP.
GRANTLEY ROAD, YORK, PENNSYLVANIA

BW DIVISION
BORG-WARNER RESEARCH & ENGINEERING MAKE IT BETTER

Air Conditioning, Heating, Refrigeration and Ice-Making Equipment • Products for Home, Commercial and Industrial Installations

Non-Oxidizing Algaecide Can Virtually Eliminate Surface Deterioration of Redwood

3 Advantages over Chlorine Solution Cited by Dow

MIDLAND, Mich.—"The surface deterioration of redwood in cooling tower service may be virtually eliminated by avoiding the use of chlorine and using a non-oxidizing algaecide in the treatment of circulating water."

This was the conclusion of the Cooling Tower Institute after studying tests conducted on large cooling towers in this city by the Dow Chemical Co. The tests were extended over 15 years of cooling tower experience, according to Dow, and extensive and specialized studies were conducted from 1949 through 1958.

TESTS CONDUCTED on this giant cooling tower indicate that the use of non-oxidizing chemicals in place of chlorine is advantageous for algae control, according to Dow Chemical Co. This tower circulates 100,000,000 gallons of water per day; make-up is 1,700,000 gallons.

Based on findings with a cooling tower which circulates 100,000,000 gallons of water daily—with a make-up of 1,700,000 gallons—it was determined that "non-oxidizing chemicals such as sodium pentachlorophenate or commercial formulations containing blended chlorophenates as the main ingredients are superior to all other methods tried in the past."

When the tower was first put into operation in 1943, chlorine was used for biological control. "However, algae control was difficult and mist eliminators required hand cleaning at least once a year. Delignification also proved a problem." (Delignification is the "chemical white deterioration" characterized by softened wood with a bleached appearance.) The study indicated that even a low concentration of chlorine can initiate surface deterioration of the wood.

In 1948, the entire cooling system was cleaned and sodium pentachlorophenate was circulated at 80 parts per million. "Within 24 hours after start of the treatment, all signs of algae disappeared where direct water contact was made," states the Dow report. In 1958 a final phase of the study included determination of the effectiveness of commercially available formulations containing a blend of saturated and unsaturated chlorophenates as major ingredients.

The study concluded, "Either sodium pentachlorophenate or commercially formulated products containing blended chlorophenates may be used successfully. It is apparent that the effective biocidal activity is derived from the presence of chlorophenate."

According to Dow, treatment of algae with these non-oxidizing chemicals results in three main advantages over chlorine treatment:

1. a lower net cost,
2. a more thorough job,
3. actual protection of wood surface.

Pennsalt Offers 'Handi-Stand' for Large Cylinders

PHILADELPHIA — Pennsalt Chemicals Corp. is providing servicemen who use "Isotron" refrigerants in 22 and 25-lb. cylinders with a new device to make their jobs easier.

"Each Isotron cylinder in this size is now equipped with a 'Handi-Stand,' a combination stand and hand carrier which replaces the plain protective cap and is a permanent part of the cylinder," the company said. "The device becomes a built-in stand on service calls and is also well-designed hand grip for moving cylinders."

Richmond Wholesaler Opens First Branch

CHARLOTTESVILLE, Va.—Openings of a branch store—its first—at 1233 Harris St. here has been announced by Refrigeration Supply Co. of Richmond, according to Walter Booth, president.

The 2,000-sq. ft. branch store is managed by R. J. "Bob" Cousins.

A stock of refrigeration, air conditioning, and heating replacement parts, controls, accessories, and equipment is maintained in the branch.

Ross Announces New Psychrometric Chart

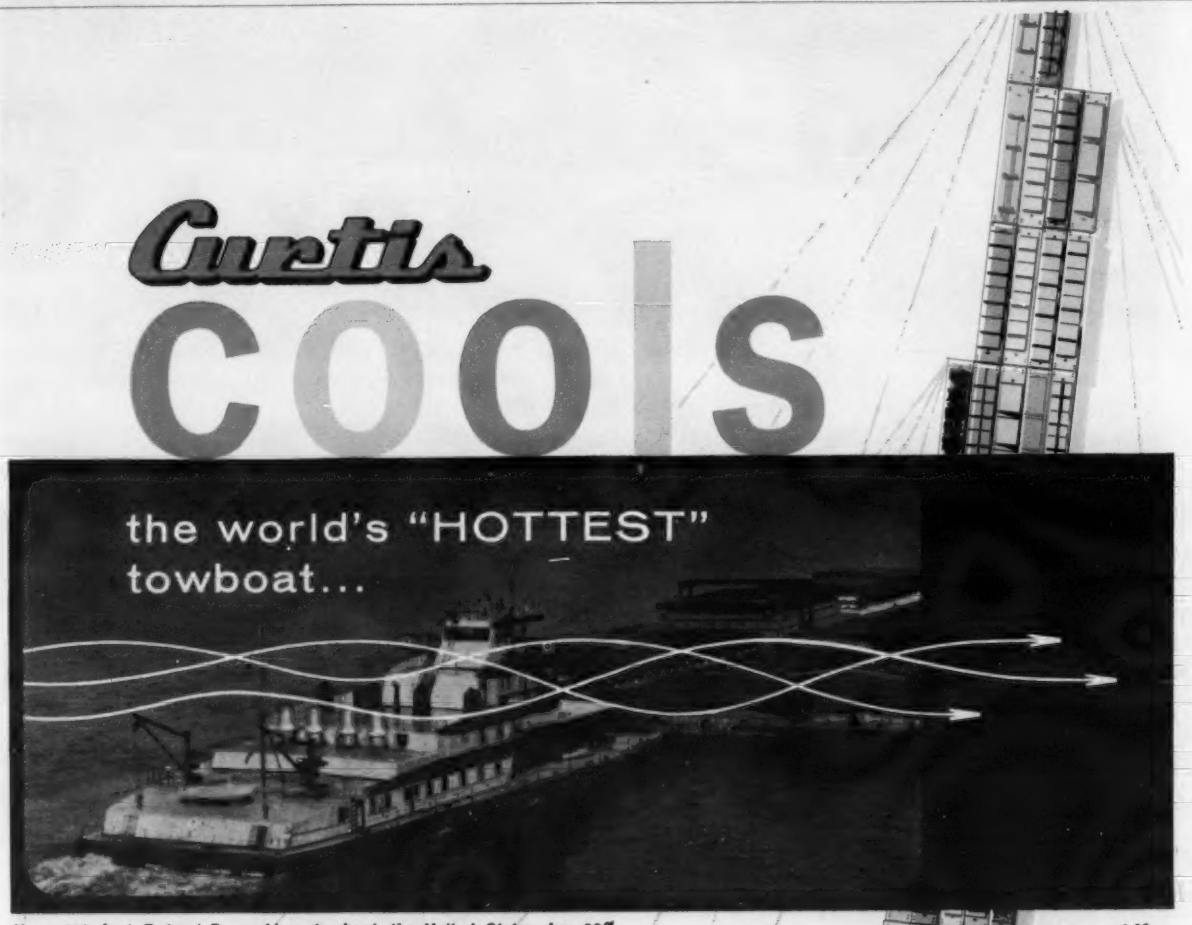
NEW YORK CITY — J. O. Ross Engineering, a division of Midland-Ross Corp., announced that a new edition of the Ross psychrometric chart is now available, upon request, at no charge.

This expanded chart now goes to 350° F. dry-bulb temperature, it was pointed out.

The concern is located at 730 Third Ave., New York 17, N. Y.

Curtis

COOLS

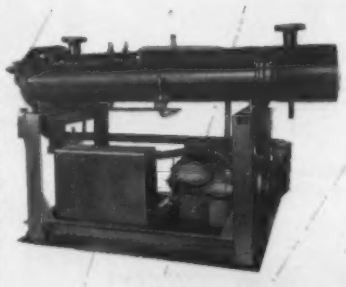


Huge 180 foot Federal Barge Lines towboat, the United States, has 50% greater horsepower than the largest towboat on the rivers. It can push 40 barges, totaling 1/3 mile, or 300 ft. longer than the "Queen Elizabeth".

C-96

Space saving design versatility? Easy installation? Operating dependability? Comparative cost? All these factors were considered by St. Louis Shipbuilding and Steel Company in the selection of air conditioning equipment for the world's most powerful towboat. The shipbuilders' and their design engineers' careful choice? A Curtis 20-ton packaged liquid chiller system. This equipment will cool the crew's quarters, galley, mess room, officers' and guest quarters—all with individual room or area temperature control.

Your selling job is easier when you sell Curtis—well-known installations and steady advertising have made your customers familiar with the completeness and dependability of the Curtis line. You can safely promise peak performance always up to, and frequently surpassing, rated capacity. Your profit on Curtis is the industry's envy . . . and the minimum service required on Curtis equipment keeps relations with your customers at their best.



THE COMPLETE LINE OF LIQUID CHILLERS • PACKAGED AIR CONDITIONERS • CONDENSING UNITS

Curtis MANUFACTURING COMPANY • REFRIGERATION DIVISION • *St. Louis 33, Missouri*

ESTABLISHED IN 1954

Illinois Tollway Facilities Feature Multizone Cooling

LOS ANGELES—All of the facilities along one of America's most modern highways, the Illinois Tollway, feature air conditioning and commercial refrigeration by Recold Corp., the company reported.

Carefully located along the 187 miles of highway are five "Oases" built by Standard Oil Co. (Ind.) at a cost of more than $13 million. Here motorists may stop to enjoy meals at Fred Harvey Restaurants or to service their automobiles at one of ten Standard Oil service stations.

The buildings on these "Oases," as well as the toll gates themselves, utilize Recold multizone units to maintain comfortable, even temperatures. Through its ability to serve individually controlled zones, a Recold multizone unit can simultaneously heat and cool separate areas of a building, it was noted.

Restaurants Unique In Design

The five Fred Harvey Restaurants at these "Oases" are unique in design. Each restaurant is located on top of a 250-ft. bridge, which spans the Tollway. The buildings feature ceiling-to-floor glass walls, so that motorists can watch the Tollway traffic as it passes under the restaurants.

Each "top o' the tollway" restaurant is serviced by six Recold multizone units, with each unit serving a specific area of the building. The dining area, kitchen, rest rooms, offices, and snack bars may be individually controlled to provide ideal room-to-room temperatures for work and leisure.

The kitchen equipment at each restaurant is arranged in a compact manner to facilitate the ease and speed of food preparation.

Storage Must Be Adequate Since Restaurants Are In Remote Areas

Recold refrigeration blower coils are installed in dairy, fruit and vegetable, meat, and freezer walk-in boxes at each of the locations. These refrigeration facilities are adequate for large quantities of supplies since the restaurants are in remote areas and away from supply depots, it was pointed out.

The main kitchen, open kitchen, and snack bars have Recold multizone air-handling units to temper the air in these areas. These units maintain a slight negative pressure in the open kitchen areas to prevent any cooking odors from entering the restaurant spaces.

Gas Stations, Toll Gates Use Multizone Units

Each of the ten service stations is equipped with two multizone units which air condition the sales office and rest room areas. At each Oasis there are two service stations, one on each side of the Tollway. There are facilities for servicing 40 cars at one time at each of the ten stations.

The 14 toll collection gates are serviced by Recold's high-velocity multizone units.

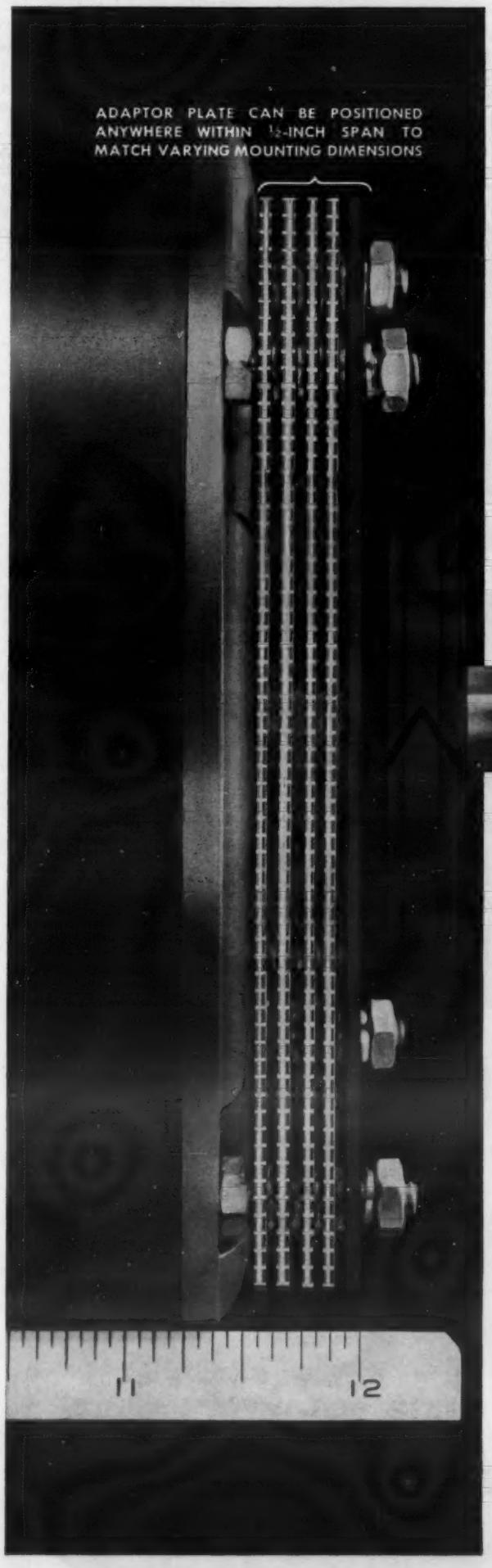
The Illinois Tollway system links Chicago with four separate areas of the State. First, the Tri-State branch runs North and South, connecting with highways at the borders of Wisconsin and Indiana. The other two branches of the Tollway extend westward from the Chicago area, it was pointed out.

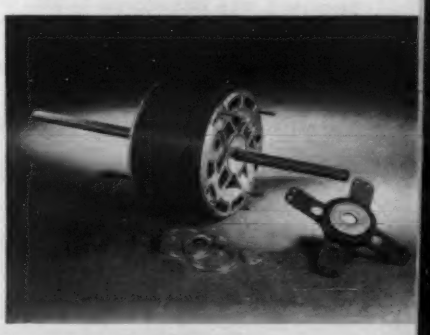
A total of 265 bridges have been erected throughout the Tollway Road system which free drivers from worrying about any cross-traffic. Minimum speed ranges from 60-70 miles per hour.

The construction of the Tollway was financed by the sales of $441 million in revenue bonds to private investors. When these bonds are retired, the Tollway will revert to the State of Illinois as a free road.

Architect for the Tollway installations was Pace Associates of Chicago. The air conditioning was installed by the William A. Pope Co., Cicero Sheet Metal Co., and Comfort Conditioning Co. Recold refrigeration equipment was installed by Carrier Contracting Corp.

SEND FOR REPRINTS
"SERVICE MAINTENANCE CONTRACTS AND AVERAGE CHARGES FOR SERVICE PARTS AND OPERATIONS."
Only 50¢ each.
For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

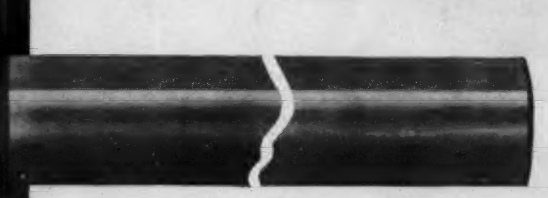




New motor with adaptor rings, mounting adaptor.

HERE'S A FAN MOTOR THAT

CHANGES SIZE!



Stock this new General Electric fan motor—solve most air conditioner replacement problems

Now, by stocking this versatile motor—available in shaded-pole or permanent split-capacitor designs—you can replace practically any 5½-inch diameter fan motor on today's room air conditioners.

As a result of the trend to thinner room air conditioning units over the past several years, you're being called on to replace motors of many different lengths. You can match almost all of these varying mounting dimensions by simply adjusting the position of the specially designed mounting adaptor along the motor's extended through bolts. And, of course, you can remove the adaptor entirely for band or through-bolt mounting.

Special ring adaptors offer you still further mounting versatility. You can snap them around the 2¼-inch cushion rings to meet 2½-inch ring requirements.

Extra-long shaft extensions, with extra-long "flats," are standard on this new motor. You can cut the shafts to any length, or to single shaft requirements. A gun-metal-like treatment protects the shaft against corrosion and provides for easy removal of fans in years to come.

Available in ratings from 1/15 to 1/4 horsepower, this new replacement motor gives you the same General Electric quality designed and built into every Form G motor—outstanding moisture resistance, top-notch insulation, and long lubrication life. Call your nearest General Electric distributor or your G-E Apparatus Sales Office about this new replacement fan motor today. General Electric Co., Schenectady 5, New York. 798-09

Progress Is Our Most Important Product

GENERAL ELECTRIC

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

uncluttered genius, "Dope" was enthralled. Herewith we present, in a reasonable facsimile of Mr. McCormack's own words, some new sidelights.

"In 1926, as a young engineer in the Frigidaire Div. of General Motors, I was introduced to Mr. Kettering. He explained an idea for a special clutch, and I was selected to develop the item.

"His sketch of the clutch was more like hen scratches than a drawing, so I kept asking him questions until I understood what he wanted.

"Following week was spent completing the drawing of his clutch idea. In the upper corner of the drawing I made an inconspicuous sketch of a modification of his design, whereby one moving piece was eliminated.

"My plan was not to mention the idea unless the opportunity seemed ripe. However, I didn't know the Boss.

"When the drawing was shown to him his eagle eye took it all in at a glance, and pointing to my tiny sketch, he said, 'I see that you changed it on me. I used four operating pieces and you use three.

" 'Anybody can make a complicated thing but it takes a simple guy to make a simple thing.'

"With that he threw back his head and laughed.

"It was not long after the clutch episode when I was lamenting over a rather inexcusable failure I had made. He exploded, 'My God, man, don't you know that nobody does anything right the first time?'

What's New

"Kett's greeting was never 'hello.' It was 'what's new?'

"Saturday morning was his usual time to visit Frigidaire. He loved nothing better than to drive his car as close to the elevator as possible, then to race up to our seventh floor laboratory, and say something like:

" 'I've always wondered how a bank works so I just bought one.' He had purchased the largest bank in Dayton. Under his genius the bank prospered and grew.

"I will never forget the happenings of another Saturday morning. For a long time we had been mystified at occasional complete bearing failures found in a certain type of compressor, and we had set up an elaborate engineering trap to catch the failure early enough to establish the cause.

"I was busy and dirty tearing down a compressor. At that moment Boss Kett walked in, and I showed him the shaft and bearings which still were oily and dirty.

"The Boss was delighted, and turned to our chief engineer, and exclaimed: 'Look, Lester, there it is.'

"Lester gingerly took the shaft so as not to soil his hands. This infuriated Kettering. He grabbed the shaft out of Lester's hands, and stroked it across the latter's clean white shirt.

Sloan Never Knew

"One day we were demonstrating an improvement in compressor mounting to a group including Alfred Sloan, then president of General Motors.

"With the old mounting, the cabinet vibrated when the compressor was running; but with the new system the cabinet vibration was hardly perceptible to the touch.

"We had two refrigerators, new and old, side by side. Through some oversight an empty cabinet devoid of any refrigerating equipment stood next to these two demonstration refrigerators.

"Mr. Sloan touched the empty cabinet (he didn't know it was empty) and said, 'This one is even better.' "

Mr. Kettering carelessly draped his ample frame over the empty refrigerator, so that none of the inspection party would be able to discern it was just a shell, and gave our friend McCormack the credit for having achieved a miracle of quietness!

Back in 1929 Kettering foresaw the market for automobile air conditioning and decided to air condition his Cadillac.

"The specifications were laid out, and I was to provide the compressor to deliver a specified rate of cooling, yet weigh only 12 pounds," reminisces McCormack.

"Thus, this new compressor was to weigh slightly less than a standard compressor, but had to develop some 20 times as much refrigeration.

"Once in a lifetime an engineer makes the near perfect product the first time, and this was my moment. Our only deviation from specification was the weight, which came out 13 pounds.

"Often I was a trial-horse for his thoughts. This was particularly true one morning when I was riding with the Boss from his downtown Detroit hotel suite to General Motors.

"That evening he was to give a talk at the Ford hospital, and I had a feeling that I was a tryout audience for his forthcoming speech. His conversation with me went like this:

" 'See that crowd of people out there?' (It was about 8:30 in the morning, and the downtown streets were jammed with pedestrians.)

" 'I could stop this cab and walk over to that newsstand. I could go in a straight line bumping people out of the way, or I could dodge and shift my way without touching anyone.

" 'In the second case I would get there sooner and make no one angry.

"That's tolerance. They should teach it in college.

" 'A young college graduate

(Continued on Page 19)

Ideal for Meat-Cutting Rooms

Modern supermarkets with self-service meat departments require properly refrigerated meat cutting and packaging rooms. Since space is always at a premium, Larkin Half-Turret Humi-Temps win applause for their ability to save space without sacrificing efficiency.

Here again, Larkin has chalked up amazing results in maintaining properly balanced temperature and humidity.

FEATURES THAT SELL

- Original, patented Larkin Cross-Fin Coil with staggered electro-tinned copper tubing and aluminum fins.
- Light-weight, rust-proof aluminum case finished in Larkin blue or gleaming white.
- Built-in heat exchanger.
- Permanently lubricated motors, resilient mounted, with thermal overload protection.
- Hinged drain pan for easy access to coil.
- Airplane-type, vibration-proof fastenings.
- Mounting brackets, slotted for easy installation.
- Fully insulated drain pan.

See your wholesaler or write for Bulletin 1049B.

WATCHDOG OF THE NATION'S FOOD AND COMFORT · LARKIN

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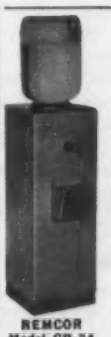
519 Memorial Drive, S.E. • P. O. Box 1699 • MUrray 8-3171

ATLANTA 1, GEORGIA



REMCOR Model CB-2A

WATER COOLER

5 Gallon Bottle Type

$89.50*

*TO DEALERS ONLY

. . . economical . . . efficient . . . streamlined . . . space-saving . . . ½ H.P. Tecumseh hermetic unit . . . five year warranty on refrigeration cycle . . .

Remcor Products Co.

321 E. Grand Avenue, Chicago 11, Illinois

manufacturers of water coolers since 1940

also available:

pressure type coolers * $139.50

bottle type coolers (with refrigerated storage compartment)

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

SING A SONG OF SIZES . . . UP AND DOWN THE SCALE.

Whatever the requirements of your refrigeration or air conditioning equipment may be, chances are there's a Bendix-Westinghouse compressor and condensing unit to fill them. For Bendix-Westinghouse offers a complete range of sizes and capacities—from ¼ hp on up through 5 hp. And they're all designed for tight-squeeze quarters. No other compressors of their size deliver so many BTU's. Turn the page for important news about the newest member of the Bendix-Westinghouse line.

Bendix-Westinghouse MOTOR COMPRESSORS

NOW! SIX BENDIX-WESTINGHOUSE COMPRESSOR SIZES BRING NEW ROOM COOLER DESIGN FREEDOM

This new Bendix-Westinghouse compressor series gives manufacturers of window air conditioners a wide range of capacities for complete line planning:

Model	BTU's	Volts
YCH137VA-1	6,100	115
YCH161VA-1	7,100	115
YCH222VA-1	10,000	115
YCH222VA-2	10,000	230
YCH260VA-2	12,000	230
YCH322VA-2	15,000	230

Available with three or four legs, the compressors are easily and permanently bolted down in the unit. They require no mounting straps or other gadgetry, since all models are internally spring-mounted. And they are *quiet!*

Valve construction is rugged, assuring long life and dependable supply of cooling needs. Aluminum crankcase construction and modern design reduce weight, saving shipping costs both into and out of your plant. For easy access and service, the tubing connections and terminal box are located on top. Insulation for the two-pole motor is of the latest and best type.

Because Bendix-Westinghouse compressors are quiet, they are ideal for bedroom-window units—a potent sales feature for you. Get all the facts on the versatile line of Bendix-Westinghouse compressors. Call or write direct.

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio
Export Sales: Bendix International, 205 E. 42nd St., New York 17, N.Y.

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 16)

has to quit two or three jobs before he learns that there is always a boss somewhere up the line who is incompetent and mean. If they taught such things in college he wouldn't have to quit those jobs.' "

Ketteringisms

These are but a few of the experiences which illuminated McCormack's contacts with this great man.

Kettering *was* a great man, as all who knew him agree. The memory of experiences shared with him is their most cherished possession. Recalled Ketteringisms:

"Make it simple."

"If a committee of three agrees unanimously, at least one member is superfluous."

"Listen, for Nature is trying to tell you something."

"Be interested in the future for that is where you are to spend the rest of your life."

Story of the Week

An Indian entered the Phoenix, Ariz. office of the Department of Internal Revenue to get help in filling out his income tax form, according to Art Schellenberg.

"How much did you earn last year?" asked the clerk.

"Ugh," grunted the Original American.

"How many dependents do you have?" the clerk pursued.

"Ugh," ugged the Red Man.

"Look," snorted the clerk, "give me the facts. It may work out that the government will owe you a refund."

"Ah," brightened the Indian. "How much?"

McQuay Sales for '59 Up for Fourth Year

MINNEAPOLIS — For the fourth consecutive year, sales and earnings of McQuay, Inc. set new records in 1959.

This was revealed by B. E. James, president, in the company's annual report.

Gross sales of McQuay products last year were $17,221,000, a new all-time record and 28% higher than for 1958 when sales amounted to $13,453,000.

Net income was $517,000 in 1959 compared with $381,000 a year ago. This amounted to $1.32 a share on 386,798 outstanding shares of common stock after preferred stock requirements, compared with $1.20 a share on the 305,969 shares of common stock outstanding a year ago.

During the year just ended, McQuay paid regular quarterly dividends of 12½ cents a share on the common stock, and in addition paid a 5% stock dividend. This is the fourth consecutive year that either an extra stock or extra cash dividend was paid to stockholders.

Regular dividends have been paid on preferred stock of the company every year since its issue. The dividend paid on Jan. 4, 1960 was the 48th consecutive dividend paid.

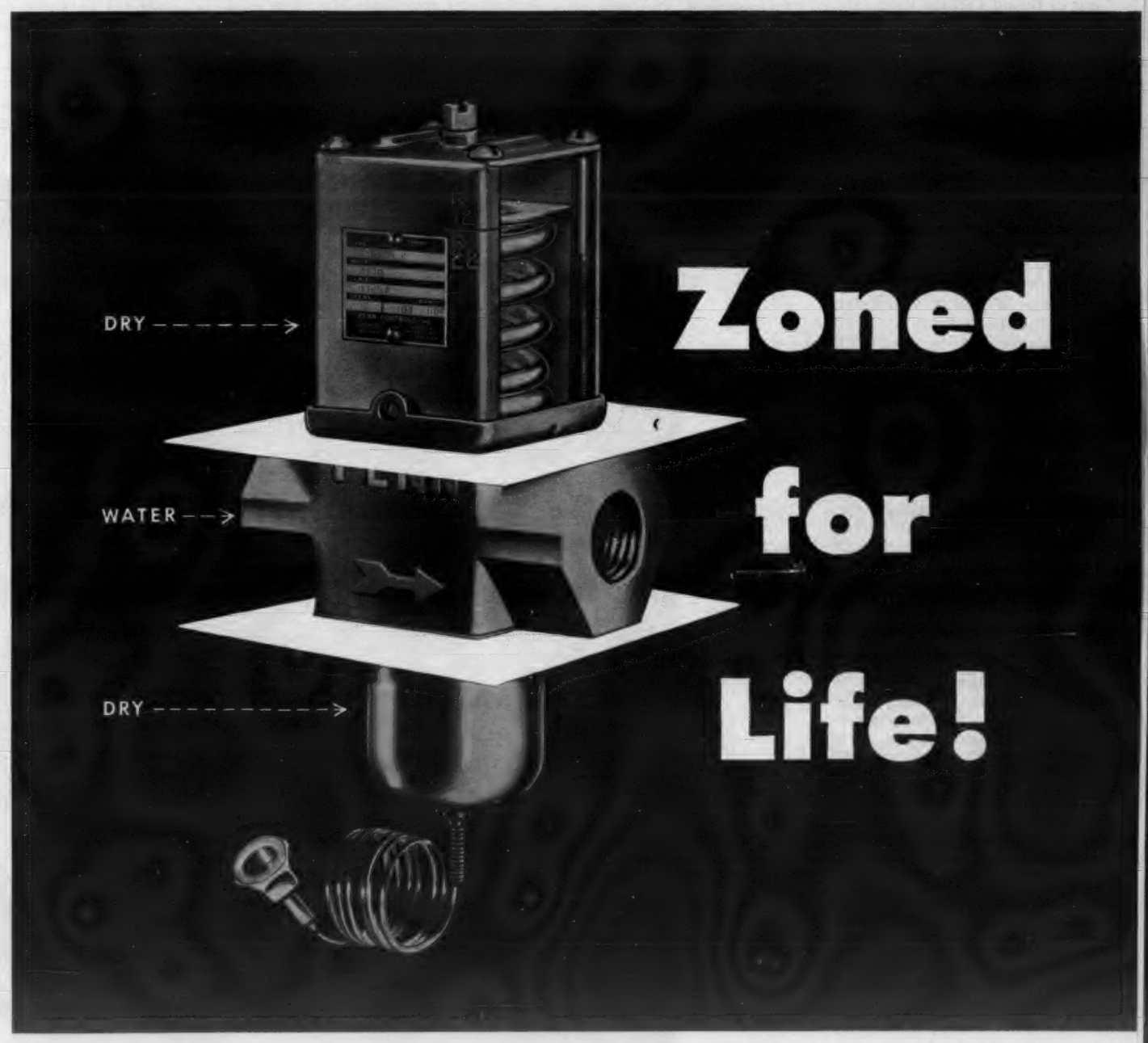
James pointed out that "American Automatic Ice Machine Co., our wholly owned subsidiary, continued the favorable sales trend of previous years and turned in the best sales gain in its history."

In commenting on the outlook for 1960, James said, "The year ahead should be a very good one for our company."

36 Lennox Territory Managers Meet at Plant

MARSHALLTOWN, Iowa — The application of industrial and commercial heating and cooling was the chief subject of a recent two-day meeting here of 36 Lennox territory managers, according to Lloyd Larson, midwest division general manager.

Larson said the territory managers will transmit new information on products and methods directly to engineers and architects as well as to approximately 1,500 dealers.



IN THE PENN WATER VALVE... two diaphragms keep water away from the bellows, range spring and sliding parts. Water... with its rust, corrosion and sedimentation... never has a chance to attack these "working parts" and cause destruction. That's why the Penn 246 stays on the job longer than ordinary valves! Ask your wholesaler... he'll tell you the Series 246 is the best.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

19

Removes MORE SCALE per Dollar Spent!

VAPCO SCALE REMOVER

The activated acid in powder form containing inhibitor, wetting agent and algaecide for a COMPLETE cleaning job under the most severe conditions. Easy on galvanize — safe for equipment. Keeps head pressure down — efficiency UP! 10 to 50 pound drums with "Tel-Action" pH indicators.

VAPCO-HIB

Make your own cleaner with VAPCO-HIB. Added to muriatic acid, VAPCO-HIB increases the acid action, yet provides outstanding protection to metals including galvanize. Supplied in 8 and 32 ounce bottles and bulk.

Vapco

Complete literature on request or see your dealer 11CHAF1

CARMAN COMPANY
ST. LOUIS 38, MO.

Octagonal Building Prompts Unusual Treatment

Built-In Flexibility Will Be Feature of Grand Central City's Air Conditioning

NEW YORK CITY—A unique air conditioning installation, embodied in a $9,000,000 mechanical contract let to the Raisler Corp. by Diesel Construction Co., general contractor for the 59-story Grand Central City, will employ distinctive methods for cooling perimeter and interior areas, according to Grand Central Bldg., Inc.

"Moreover, to condition the structure's 2.4 million square feet of tenant space, Jaros, Baum & Bolles, consulting engineer, has designed the world's largest office building refrigeration plant," the announcement said. "This will provide a cooling capacity equal to the melting of 20,000,000 lbs. of ice every 24 hours."

According to Erwin S. Wolfson, who heads the group erecting the $100 million tower to rise on the 3½-acre site at the rear of the railroad terminal, Grand Central City's air conditioning, heating, and ventilating system "will depart quite dramatically from conventional office building construction."

Provides for Needs Of Individual Tenants

Built-in flexibility, planned to meet requirements of individual tenants, will allow the tenant to enjoy air conditioning after normal work hours; will cope with special business operations such as broadcast and television studio facilities; and will adjust to such other peculiar office needs as heavy business machines and electronic processing equipment rooms, it was stated.

"The octagonal shape of the building with its eight separate exterior exposures has also prompted unusual treatment of periphery areas," the announcement pointed out.

"Highlighting the Grand Central City air conditioning installation will be an air induction system zoned both vertically and horizontally for the periphery of the building. Supplying fresh air to the 5,000 high pressure induction units in the outside walls will be large central fan rooms, to be located on the roof, the 46th floor, and on the 21st floor.

Distinctive Method Handles Interior Areas

"Complementing the system for 'outside' offices is a distinctive method for handling interior areas. Two zone treatment for the interiors of each tower floor is being provided to insure the high degree of flexibility in air conditioning.

"Grand Central City will feature two individual air supply systems on every tower floor. Each half of every floor will have a separate fan room to serve its interior space. This is a departure from the commonly-used system in office buildings that recirculates air from central interior supply rooms located at various distribution points in the structure.

"Special air conditioning techniques have also been developed to serve the peculiar needs of service facilities in the building, particularly the large restaurant operations planned.

"Interestingly, the new skyscraper's air conditioning system will require the greatest quantities of steam on the hottest days of the summer. Refrigeration compressors will be driven by steam turbines, and the building's peak steam consumption will be approximately 200,000 lbs. of steam per hour to meet the warmest outside conditions. Thus, as temperatures rise so will the steam requirements increase.

"To move the quantities of air necessary to keep the building at comfortable conditions of temperature and freshness, fans delivering approximately five million cubic feet of air per minute have been specified."

One of the interesting aspects of the Grand Central City air conditioning installation will be the rigging required to set up the machinery room.

Because the building will rise directly over the tracks and station platforms of the New York Central and New Haven Railroads, the structure will not have a basement—the conventional location for most of the heavy heating, ventilating, and air conditioning equipment, it was noted.

Instead, the three refrigeration machines—each weighing 100 tons—will be raised aloft 775 ft. to the roof of the 59-story structure where a machinery room will be set up in conjunction with the cooling tower.

Grand Central City, on which work is scheduled to begin on May 1 for completion in late 1962, will be erected from plans by Emery Roth & Sons, architect, and Walter Gropius and Pietro Belluschi, consultant architects. James Ruderman is structural engineer.

Brooklyn Federal Court House To Be Conditioned

BROOKLYN — The Federal Courthouse and office building being erected in downtown Brooklyn will be air conditioned, it has been reported.

There will be a six-story structure on Washington St. connected to a four-story building facing Tillary St. and a two-story passageway joining them. Completion of the $13,683,000 project is scheduled for June, 1962.

Shea Equipment Named

SAN FRANCISCO — Shea Equipment Co. of San Francisco has been appointed northern California representative for the cast iron gas and oil fired boilers manufactured by Weil-McLain Co., Michigan City, Ind.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Dealer profits come from calls.

Mayor Proclaims Silver Shield Week as Lima Establishes First Program In Ohio

LIMA, Ohio—Lima recently became the first city in Ohio to establish the Silver Shield program.

Since August of last year, heating and cooling dealer-contractors have been meeting, week after week, to organize the "Lima Area Indoor Comfort Bureau," the forerunner to Silver Shield installations.

During the past four months a training school using the manuals of the National Warm Air Heating & Air Conditioning Association, the sponsoring group, has been held weekly to acquaint over 20 local dealers in the proper way to install warm air heating and ducted air conditioning equipment.

According to John Paul Timmerman, president of the Lima Area Indoor Comfort Bureau, a dinner meeting held Monday evening, March 28, at Clemans Restaurant, climaxed the group's organizing efforts when their operating license was presented.

Over 250 people from the greater Lima area, plus representatives of manufacturers of heating and cooling equipment, were in attendance. Scheduled as featured speakers were Cong. William McCulloch, Chairman of the Trade of Ohio's Fourth District, and Ohio Attorney General Mark McElroy of Columbus.

The official license to operate an Indoor Comfort Bureau and sell Silver Shield Systems was presented by Don Winegardner, vice president of NWAHACA and of the Majestic Co., Inc., Huntington, Ind.

In honor of the occasion, Lima Mayor Clyde Welty proclaimed the week of March 27-April 2 Silver Shield Week.

BUREAU MEMBE

Active members of the Lima Area Indoor Comfort Bureau are: W. Ray Jewell Sheetmetal; Robert E. Leis, Reliable Heating, Spencerville; William Smith, Smith Heating, Bluffton; Harold Long, Home Heating Sales & Service; Duane Reynolds, Reynolds Heating Service; Paul Ley, Stinebaugh Heating.

Also, John P. Timmerman; Russell L. Orchard, Russell L. Orchard Co.; D. L. Richey, D. L. Richey Co.; Henry Hawisher, Henry A. Hawisher Heating Contractor; Kline & Altenburger.

Other dealer-contractors who have joined the bureau but are not Silver Shield certified members are: Jones Suburban Gas Co., E. A. Rader Heating, W. W. Henderson Furnaces, Woody's Heating, Ohio Heating Service.

Wholesaler members of the Indoor Comfort Bureau are: Lima Supply Co., Automatic Heating and Engineering Co., NB Supplies, Inc., Palmer-Donavin Mfg. Co., The Crane Co.

Utility member of the new bureau is West Ohio Gas Co., and associate member is Flynn Coal & Kleenair Co.

Other cities now licensed to operate the Silver Shield Program are Kalamazoo and Lansing, Mich.; Philadelphia; Niagara Falls; Nashville; and Sharon, Pa.

-not call-backs!

It's surprising what heating and air conditioning manufacturers can learn when they're willing to roll up their sleeves and work side by side with the most important man in the business: you, the dealer.

Close Lennox cooperation in the field resulted in the finest sales and service schools in the industry. This policy enables *your salesmen* to share experiences . . . improve their selling techniques . . . learn to close more sales, faster. And your installers become more expert in making installations right the *first* time (without profit bleeding follow-up calls and make-over work).

If this partner-like relationship has been missing from your operation—it's time to call your nearest Lennox factory for the eye-opening story.

LENNOX *World leader in indoor comfort for home, business, schools*

Lennox Industries Inc. founded 1895 • Marshalltown, Iowa • Columbus, Ohio • Syracuse, N.Y. • Fort Worth, Texas • Salt Lake City, Utah • Decatur, Ga. • Los Angeles, Calif. • Des Moines, Iowa • Lennox Industries (Canada) Ltd. • Toronto, Montreal, Calgary and Vancouver

ARI Prepares Clipsheet on Home Cooling

WASHINGTON, D. C. — The Air-Conditioning & Refrigeration Institute has prepared a six-page clipsheet on residential air conditioning for the use of publications requiring editorial material for special sections on the subject during the coming spring and summer months.

The clipsheet, which includes articles of varying lengths covering the benefits of air conditioning, tips on selection of units, and types and kinds of units available, also contains a number of half-tones and line drawings which may be reproduced by using publications.

Also included are articles describing ARI's Certification Program for Unitary Air Conditioners, under which units are tested and rated to provide assurance to purchasers that such units will perform as advertised.

The clipsheet is being mailed out to all daily papers with circulation of 25,000 and over, as well as to consumer periodicals.

Extra copies may be obtained by writing to the Public Relations Dept., Air-Conditioning & Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington 6, D. C.

Newell Heads New Western New York Indoor Comfort Bureau

BUFFALO — Clifton D. Newell, a partner in the General Gas Equipment Co., has been named president of the newly-formed Indoor Comfort Bureau of Western New York.

The group, under auspices of the National Warm Air Heating & Air Conditioning Association, will seek to "upgrade the heating and air conditioning trade," Newell said. The group includes representatives of some 50 Western New York companies which install heating or cooling equipment.

Other officers are: Vice president, Howard Adema, N. M. Adema & Sons; secretary, Bert Weigel, Rundel & Weigel; and treasurer, Frank Good, Charles R. Turner Co.

Newell said the new association will sponsor a 12-session training course to familiarize its members with codes and manuals of the national organization.

T. D. Bullock Heads NWAHACA of Canada

TORONTO, Ont., Can.—T. D. Bullock, president of Bullock's Ltd., Winnipeg, was elected 1960 president of the National Warm Air Heating & Air Conditioning Association of Canada at its recent convention.

He succeeds F. W. Thomson, sales manager, of Lennox Industries (Canada) Ltd. of Toronto. J. W. Fry, Torrington Mfg. Co. of Canada Ltd., Oakville, was named vice president.

Pertinent Program for Promoting American Exports and World Trade

PRESIDENT EISENHOWER'S "personal diplomacy," as expressed in accoladed journeys to Europe, the Middle East, and South America, soon may pay an unexpected dividend to American businessmen.

As one of the final (and most significant) acts of his long and illustrious career in government service, Ike will launch a massive program to promote the sale of American products abroad.

"World peace through world trade" could be the theme. Here are some of the facets of the program:

(1) For the first time in its history the U.S.A. will guarantee short-term export credit (used chiefly for consumer goods) against loss from foreign governmental action—such as currency exchange regulations, expropriation, acts of war, etc. A small insurance fee will be charged for this protection.

(2) ***Exhibits*** at international trade fairs will be stepped up, and the "hard sell" will be substituted for the "don't brag" approach previously in vogue in our representation at these shows.

(3) U.S. embassies abroad will attempt to recruit commercial specialists from among American businessmen, so as to gain on-the-spot *salesmen* with "know-how" who can *move* our goods.

(4) Department of Commerce officials also will turn this "hard sell" approach *inward.* They'll work overtime to convince American Businessmen that the latter *do* have excellent opportunities for gaining extra profits by engaging in world trade. The Small Business Administration will get into this act, too.

(5) Finally, "trade missions" (small groups of U.S. businessmen who go abroad to work out mutual commercial exchange deals, promote exports, etc.) will be multiplied.

There's more to this world trade promotional effort than would appear to the naked eye. It isn't just an extension of Ike's personal-diplomacy tours in the cause of peace. Value of the dollar is at stake, too.

Although our exports continue to exceed imports, and our earnings from factory branches and licensees abroad are leaping at an astounding rate, we are losing gold.

Reason: Our gigantic foreign aid donations, plus immense costs of our military establishments on foreign soil, along with the tremendous rise in tourism, have resulted in a total outflow of dollars exceeding our current intake.

Economists call this phenomenon "a balance of payments deficit." If it goes on much longer we'll be in serious trouble at home as well as abroad. That's why, all of a sudden, it has become patriotic to be an exporter, a world trader.

It should be footnoted that not a few American industries will oppose this program. They're the ones who already are hurt by foreign competition. Included in this list are textiles, steel and other basic metals, cameras, electronic products, even automobiles.

Latter industries generally shudder at lower wage rates abroad. That's a factor, of course, but it can be overcome by superior American technological efficiency, and advanced designing.

Our refrigeration, heating, air conditioning, and home automation related industries provide a striking case in point. The good ol' U.S.A. is a world leader in terms of "know how" and advanced designing in these areas.

Almost every refrigeration, air conditioning, heating, and home automation product bought abroad is American in origin. Whether exported, manufactured under license or by a branch factory, *it is ours.*

Interestingly enough (prior to Eisenhower's Exports-for-Peace Program) shipments of U.S.A. products to international markets have been ascending recently. Good reasons why:

Quota-type import restrictions *against* American goods have been lifted in many European and Near East nations. Also in booming Australia and Japan.

The Pacific Ocean area markets alone can absorb (because they desire and can afford) far more of our exports than we've ever shipped them heretofore. And now they've opened the gates.

It is said that Ike wants our businessmen to start thinking longingly about the potential export market for their goods. Much of his official effort will be directed toward this sort of "inward promotion" among American trade associations and small business groups, we are informed.

Filing cabinets in the U.S. Department of Commerce already contain reams of credit reports and other useful information on more than 500,000 foreign establishments which are ready to do business with American firms.

Overseas commercial attaches send back regular economic reports to Washington. From these reports pamphlets are compiled on foreign-trade leads, business conditions, etc.—which will help you get started.

At present your Commerce Department is preparing a card index of foreign concerns which now act, or would like to serve, as agents abroad for American exporters. Already this list totals some 100,000 cards.

Anybody who wants to get in on this lucrative business will have plenty of help from the government, obviously, and from such sources as the NEWS.

Next annual World Trade Issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS is scheduled for Aug. 1.

Let's get with it! World Trade Means World Peace! P.S.: and prosperity.

'They'll Do It Every Time' popular cartoon by Jimmy Hatlo, which usually appears on the editorial page, is on page 44 of this issue.

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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From the Files of the News

25 years ago . . .

Directors of the Furnace, Sheet Metal and Air Conditioning Assn. of Illinois and Cook County "scrapped" the NRA code authority for that industry, charging that "the NRA is a greater racket than any ever sponsored by Al Capone," and "the national code authority is a collection agency to gather vast sums of money to be distributed among the favored few in unearned salaries and unbelieveably padded expense accounts."

The Unit Air Conditioner Manufacturers' Assn. changed its name to the Air Conditioning Manufacturers' Association and moved headquarters to Washington, D. C. The association is working toward standardization of equipment rating, installation, and application of air conditioning, and is seeking to establish broad and sound trade practices in an effort to avoid abuse of public confidence.

The "White Tower" system opened a glorified hamburger stand in Chicago, complete with air conditioning that includes a 10-hp. Frick "Freon" unit. . . . A law passed in the Province of Quebec requiring all persons engaged in the installation and engineering of refrigeration equipment over 1-hp. size to be licensed.

"According to reports, a new series of safety code meetings is in the offing," stated a NEWS editorial. "It is believed by the sponsor that if regulations could be drawn up which would be acceptable to these four cities, that the code would ultimately be adopted by the American Standards Association and evenutally become a national standard . . . as far as the NEWS is concerned, we have never attempted to pass judgment upon any refrigeration code. We have asked only that we be permitted to attend the meetings and report what happens."

10 years ago . . .

A 1¾-hp. air cooled console (floor mounted) model was included in the Remington Corp. line, but the largest window unit was a ¾-hp. model. . . . Use of glycols and ozone in air conditioning systems was discussed in the "Problems and Their Solution" column.

A hot competitive fight led to widespread practices by milk distributing firms of giving away dairy display refrigerators to retail outlets, virtually putting local commercial refrigerator dealers out of business in this particular field. . . . "Top men in the frozen foods industry are now claiming that by 1958 many of its packaged items will outsell fresh foods in these lines—sales in 1950 will top a 1949 record by more than 35%—industry's main worry is limited cabinet space in grocery stores." . . . How a Michigan firm headed by Arne Perttola achieved success completely rebuilding hermetic refrigerating units, despite the many problems involved, was told in pictures and story.

60 years ago . . .

From the RECOLD MUSEUM

These 50-to-60 years ago items are from the Recold Museum Library, maintained by Hy Jarvis, Recold Corp. president.

So many devices are making their appearance on the market which claim to solve the problem of 'can ice from raw water' that it is safe to venture the opinion that the day of a steamless ice plant is not far distant. With the development of the gas-engine and gas-producer plant, or with the electrically driven compressor, the ice manufacturer is assured a more economical power.

Aside from reducing the cost of manufacture, the new methods will dispose of that old paradox—using heat to obtain cold. With the distilling system out of the way, and with an electrically-driven compressor, a perfectly cold engine room may be had. And perhaps the operating engineer won't welcome the day!

DU PONT ANNOUNCES...

New "Zephyr" Containers for "Freon" Designed for Your Convenience

- Built-in carrying handle
- Can be used upright or inverted
- Can be stacked
- New handwheel valve
- Lighter in weight
- New 50 lb. size

These new "Zephyr" containers can be used either upright or inverted without special blocks or stands. A permanent collar protects the valve and serves as a built-in carrying handle. These are the only refrigerant containers that can be stacked one on top of the other. They are shorter—lighter—easier to carry. A 50 lb. size is now practical. No wrenches are needed because these new containers also have a new type handwheel valve. They will stand upright in your truck.

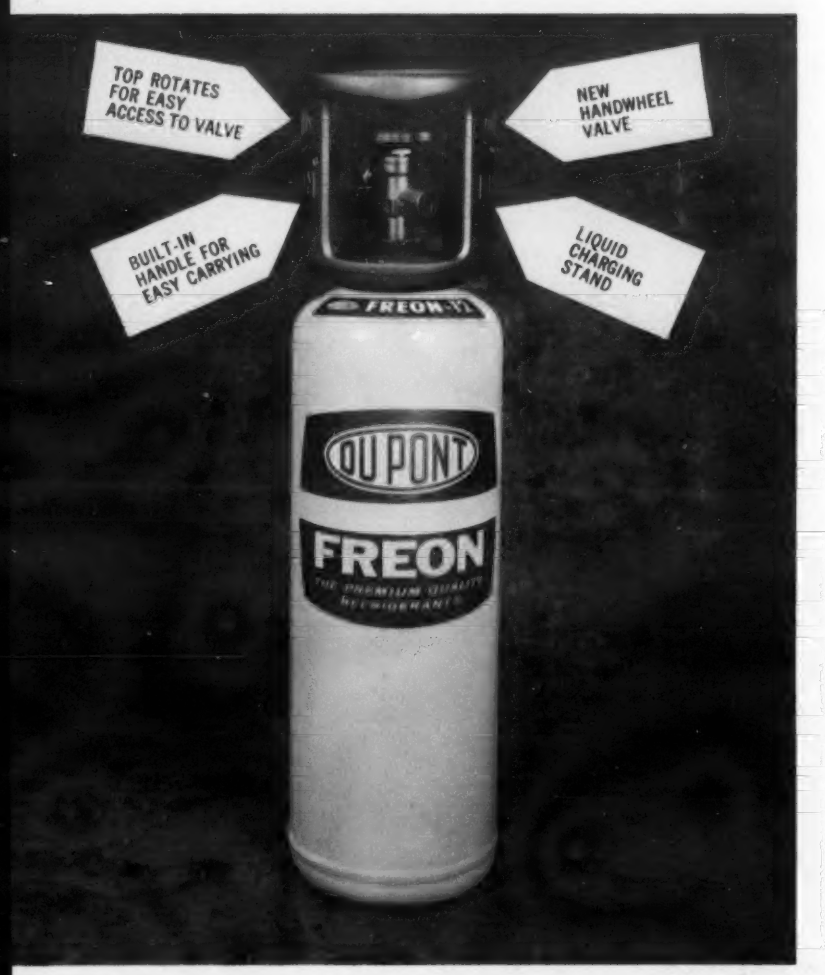
"Freon-12" and "Freon-22"—the premium quality refrigerants—are now available in these new "Zephyr" containers in 25 and 50 lb. sizes from your *leading* air conditioning and refrigeration wholesalers. Place your order for "Zephyr" containers today.

Please turn page for another announcement ▶

NEW TOP *and* VALVE

are being added for your convenience

to Standard 25 lb. cylinders for "Freon"

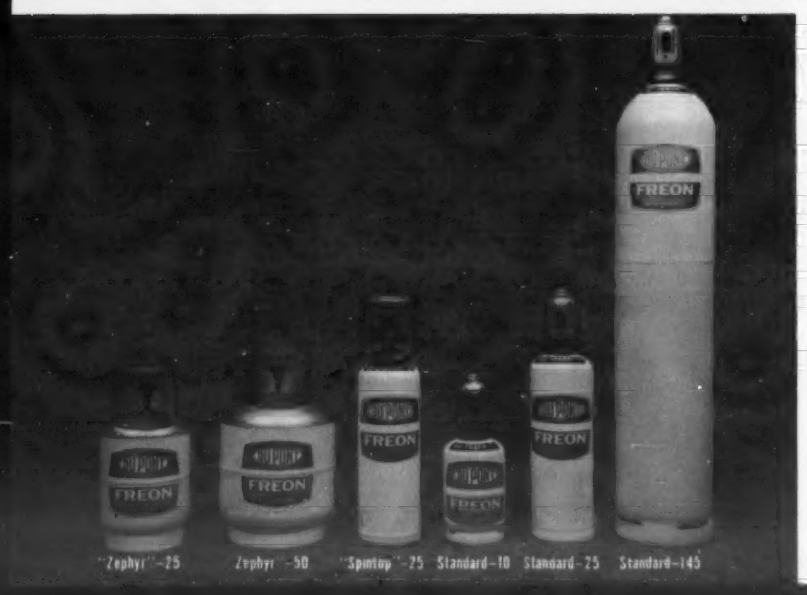


This new "Spintop" cylinder is now available in addition to the Standard 25 lb. cylinder with hood cap. The "Spintop" is a convenient carrying handle, valve protector and stand. Being free to rotate, it provides easy access to the valve. The regular valve has been replaced with a convenient handwheel type that includes a special spring-loaded pressure relief device for added safety.

Now—a Container for Every Use

For your convenience "Freon" refrigerants are offered in a family of containers*. Each of these types of containers has its own distinctive advantages. The container that best suits your needs is available from your leading air conditioning and refrigeration wholesaler. Call him today for your order of "Freon" refrigerants.

**1 or 2 lb. "Can-O-Gas" containers of "Freon" refrigerants are available from the Virginia Smelting Co., our nationwide sales agent and authorized repackager.*



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Better Things for Better Living
. . . through Chemistry

A-14664

PRINTED IN U.S.A.

FOR MORE ACCESSIBLE SERVICE TRAINING

Middlebush Rd.
Wappingers Falls, N. Y.

Editor:

Perusing your paper, it will be noted that most manufacturers offer training courses to the independent servicemen. But, why are these courses offered, only at one location?

Many independents, who service only, would attend these training sessions offered; but, cannot afford the time to travel 1,000 to 1,500 miles to the session site.

General Motors (Frigidaire Delco) must be congratulated on having training centers located in various parts of the country and ever-ready to extend a welcome to the independent serviceman.

HENRY F. BOEHM, JR.

WANTS DAILY 'DOPE'

Hobart Brothers Co.
Troy, Ohio

Editor:

I want you to know how much I enjoy "Inside Dope." AIR CONDITIONING, HEATING & REFRIGERATION NEWS is routed to me by our advertising manager, and I put it in my tickler file for the first thing to do the next morning, so I can start the day happy.

I only wish you published daily so I could start off each day with "Inside Dope."

Your philosophy, "Learn to live and laugh—thus delay your epitaph," should be practiced by everyone.

R. G. SWISHER

AUSTRALIAN WILL VISIT U.S. IN MAY

Drysdale Electric Pty., Ltd.
Kensington, N.S.W., Australia

Editor:

Since just before your visit to Australia in 1958 this Company has been active in the Air Conditioning field in Australia. Like many other expanding organizations we foresaw the future that Air Conditioning has in this country and within our scheme of diversification it was decided that Air Conditioning should play a major part.

We attended with great interest the Refrigeration and Air Conditioning Convention which was held in Sydney during 1958 and enjoyed the talks which you gave at that Convention. We have since become subscribers to AIR CONDITIONING, HEATING & REFRIGERATION NEWS, and find the articles most informative and interesting.

Since that time we have been successful in the marketing of Room Air Conditioners and Packaged Air Conditioners up to 16 ton capacity. We are Distributors in Sydney for Kelvinator and according to the arrangement which Kelvinator has in Sydney with Carrier Air Conditioning Ltd., all our Packaged Equipment from 6 tons upwards is manufactured by Carrier but marketed through us under the Kelvinator brand name.

With this range of equipment we have covered a variety of installations including offices, restaurants, laboratories, operating theatres, hotels, and private homes.

The purpose of this letter is to advise you that the writer will be passing through Detroit during the second or third week in May of this year and would very much like to have the pleasure of meeting you and discussing the latest trends of air conditioning in the U.S.A.

We are particularly interested in your views on such matters as the part played in the Industry by Distributors and Specialists such as ourselves—in multi-packaged unit installations in large buildings as against Central Station installations—the amount of sub-contracting which is done by Distributors or Specialists—air conditioning services and of course the question of Creative Selling of air conditioning.

At the present moment the writer is making up an itinerary for a short six weeks trip to the United States and if, by chance, you would not be in Detroit at the time mentioned then would, if possible, alter the itinerary slightly so as to meet you either in New York, Chicago, or possibly on the West Coast.

R. S. DRYSDALE,
Director

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
Only 25¢ each.

MOURNS LOSS OF SPORTSCASTER JOE BOLAND

Lamport, Fox, Prell & Dolk, Inc.
South Bend, Ind.

Editor:

Just a note to let you know that Joe Boland died of a heart attack early this morning. It leaves me with a terrible empty feeling, and I know that many, many people are feeling the same way. There just isn't anyone to replace him.

He was first and always a gentleman, and if he couldn't speakly kindly of a person, he didn't speak about him. He has had a tremendous impact for good. His life set a pattern of personal excellence, for our youth and served as a more believable example for them because he was an athlete and and sportsman rather than a preacher.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

I always sent Joe your football stories in the fall, and invariably he would use a couple of them along with his own fine collection of anecdotes in his broadcasts.

I had always looked forward eagerly to the time when the three of us could go to lunch together and I could listen to the two of you swap sports stories.

The fellows at the Press Club would say that "that *would* be something" when I listened instead of talked at lunch.

I thought you would like to know of this and perhaps say a little prayer that we have more men like him.

CLEMENT B. HAINES,
Vice President-Secretary

6 REASONS WHY Amana.

CENTRAL SYSTEM COOLING UNITS AND HEAT PUMPS

give you a more
PROFITABLE FRANCHISE
in the
air conditioning
business

1. A model for any installation, any climate. With Amana Central System air conditioning you satisfy the exact needs of the residential market, both new and existing homes, and most commercial applications. You select from a range of 2, 3, 4 and 5 ton units in package air conditioners, package heat pumps and remote air conditioners, both single and three phase. A wide selection of models help provide your customers with true air conditioning comfort—winter and summer—no matter what the climate.

2. One ton of cooling for each horsepower. Full capacity Amana Central System air conditioning systems are UL listed and certified under the new ARI Certification Program. Each unit is rated at 12,000 BTU/hr. or more per horsepower. This means greater performance at less cost, greater capacity in BTU per hour in both heating and cooling.

3. Quiet operation. Amana Central System air conditioning units are quiet by design . . . and by construction. Turbine blowers replace fans. Blower motors and compressor are cushion mounted. Inch-thick insulation and scientifically designed air path with large openings provide effective sound absorption.

4. Long-life performance. Amana Central System air conditioning units are built to last. Specially designed Amana-built coils and high quality components are pre-tested under rigid quality control . . . field tested for performance and long life.

5. Four-way rust protection. All interior and exterior steel parts are fabricated from rust-resistant (galvanized) steel; completely bonderized; and then given two coats of special formula Epoxy resin, baked-on enamel. The finest rust protection ever offered.

6. Easy to install at low cost. Amana units are designed and engineered to provide minimum field installation. Package units are pre-wired and incorporate an auxiliary drain connection; needs only simplest wire, drain, duct connections. Remote units have factory installed service valves, liquid line sight glass, and dryer. A new practical air flow design features in-and-out air flow from the same end of the unit. Requires minimum space and wide latitude of location.

FOR THE COMPLETE DETAILS ON AMANA CENTRAL SYSTEM AIR CONDITIONERS WRITE

Amana.
BACKED BY A CENTURY-OLD TRADITION OF FINE CRAFTSMANSHIP
AMANA REFRIGERATION, INC., AMANA, IOWA

Amana Refrigeration, Inc.
Amana 14, Iowa
Please send me complete information on Amana Central System Air Conditioners.
Name_____
Company_____
Address_____
City_____ Zone____ State_____

Hiring, Compensating Salesmen (2)

Expert Tells Why You Should Run a Blind Ad and Ask for Only One Salesman Even If You Intend To Hire More

By Ray F. Horan, Director, Institute of Dealer Management, Janitrol Div., Midland-Ross Corp.

One of the features of the 46th annual convention of the National Warm Air Heating & Air Conditioning Association in St. Louis was a symposium on "How To Obtain Competent Sales Personnel."

Subjects and speakers were "Why You Need Salesmen," Newt T. Hess, vice president in charge of sales, Vorys Brothers, Inc., Columbus, Ohio; "Hiring and Compensating Salesmen," Ray F. Horan, director, Institute of Dealer Management, Janitrol Div., Midland-Ross Corp.; "Training the New Salesman," W. Edward Bogen and John Mensel, vice president and sales manager, respectively, Bogen, Inc., Columbus, Ohio.

Condensed versions of these presentations, together with questions asked of speakers and their answers, are being published in the NEWS in instalments. The first article appeared in the March 7 issue. The second instalment, which was Part I of Horan's talk, appeared in the April 11 issue.

Editor's Note: In the first part of this presentation Horan advised dealers to prepare facilities and a sales plan for the salesman before they set out to hire him, and advised the dealers what type of man would probably fit the job best.

Now, how do you find salesmen?

Sometimes you're successful in looking over your technical crew, your installation and servicemen. You will find a guy who is dying to "get out of the grease," as he says. He wants to learn to wear a white shirt like you do on occasion. And he just wants to change the course of his life.

If you have such a man, he's your best bet. Because you don't have to give this guy a psychological test, do you? You understand this fellow and he understands you. So if you can get someone out of your own business family whom you know, this is your best bet.

But, all too frequently, this isn't possible. So, after using many systems, many devices, and many ways to locate prospective salesmen, we come to the one way which we, as an industry, will always fall back on: the newspaper ad. And this is a very interesting subject.

Gentlemen, I want to tell you something. There is a great deal of difference in newspaper ads.

Don't Tell Them What the Business Is

We have learned, first of all, that you never tell them what the business is. Your ad should be a blind ad.

Because there's no great glamour in our business today, particularly if you mention heating. If you want to make a big issue out of air conditioning, there's some glamour in that.

But if you run an ad in the paper for a man to come into the heating business, and he's never been in it before, he won't get very excited about it.

We have learned, not only in our industry but in many other industries, that the kind of man that looks for retail sales work is a man who is floundering. He's a man without a plan. If he wanted to be selling heating, he wouldn't wait for an ad to appear. He would be calling on the dealers in his town trying to get a job, wouldn't he?

You'll get more applicants, and you will get a better opportunity to sell your proposition and your story, if you run a blind ad.

Of course, it's even better if you don't use your local address. Interview them at a hotel. Interview them at your club. Interview them at your home. And that way you can get ample people to talk to. This is fundamental.

Another thing in running your ad: never advertise for sales **men,** even though you may want to hire two or three. Salesmen are very touchy people. No guy wants to join a mob. He would like to feel that he's going to go to work for somebody that's looking for one specific man, and he's the guy.

So your ad always says "sales**man,**" singular. And you philosophize with this man. You talk about the future of your industry.

Don't tell him about how cheap your product is, how you're underselling the market. You tell him the future of the industry.

This is a career job. This is an opportunity for you to sell the man on a new career.

Now, the most influential thing to getting this man to come with you is your promise to educate him. Remember, he comes from outside of the industry. If he's smart enough for you to hire, he's smart enough to know that he's got a lot of things to learn.

You're going to have to convince this man that you've got a system, and that you, or somebody in your organization, have got the time to give him his initial education in this business so he can learn enough to go out and start to work. The promise and assurance of education is one of the great factors this man looks at in the business. It's a strange thing to him, and naturally, he's scared of it. Everybody is scared of that which they do not understand.

Now, you eventually come to the point when you're going to have to talk to him about money. And this is the distressing part of the business. If we didn't have to pay these guys, if we didn't have to talk

A First From Honeywell!

Hot Weather Selling Power Months Before It Happens!

Tie Your Air Conditioning Sales to Hot Weather Forecasts that Pre-sell All Your Best Prospects

For the first time, you can combat the old "wait and see" attitude in the air conditioning business! Up to 3 months before the normal selling season starts, you can now point to accurate, dependable hot weather forecasts, and really convince prospects of the need for central, year-round air conditioning.

Starting April 3, the Honeywell Weather Watch on NBC's popular Monitor Radio program will broadcast scientific summer-ahead weather reports coast to coast. Every weekend for 6 weeks, these reports will originate from the world-famous Krick Weather Center in Denver, Colorado. And each broadcast will give you just the information you need to beef-up your selling story—multiply sales and profits! Catch the broadcasts yourself. Sundays at 3:05 P.M., 4:05 P.M. and 5:05 P.M., N.Y. time.

Plan now to tie-in with the Honeywell Weather Watch, and extend your selling season up to 3 full months! Ask your prime air conditioning prospects from among the vast Monitor audience to beat the heat early—to call you *before* the full force of summer heat is upon us.

Send for your FREE Weather Watch Merchandising Kit Today!

- SALES PREMIUMS
- WINDOW BANNERS
- CONSUMER STUFFERS
- NEWSPAPER MATS

money to him, everything would be simple, wouldn't it? But you need to make no apologies.

Now, how should you pay the salesman? Well, brother, there have been some plain and fancy ways cooked up over the years. Very amusing, too. Some fellow says, "Well, I don't want a salesman on commission. I want him on salary so I can tell him what to do. I can tell him what time to get in in the morning, and what time to quit work at night."

Well, you can tell him all right, but may not get very much production. Because, if there was ever a vocation that functions and vibrates and moves on emotion, it's selling. And if you want a salesman that is going to stay the extra 15 minutes, the extra half hour to get the order closed, then he has to be inspired. There has to be real incentive in his life.

You do not get good salesmen. operate with good salesmen, or begin to get the potential out of a good salesman on a salary basis. It makes it easier for the boss because you can give him all the lip you want. But it doesn't get the production. And this is history.

Then there's the sales manager who says, "Well, I pay my salesmen on a sliding scale. I start out with an 8% commission, and after he makes three sales in the month, I jump it to 10%. And if he goes over five sales, I jump it to 12%."

"Well, why do you do that, Mr. Sales Manager?"

"Well," he says, "I do that because I know that all salesmen are lazy. And," he says, "after he's gone along and gotten three or four sales, the only way to get him to work the last week of the month is to up the ante."

But another sales manager says, "No, not for me. I work on the basis that my salesmen have got to make their living on the first three or four sales they get. Therefore, I pay my salesmen 12% commission on the first three to four sales, and anything that they make after that, I drop their commission down to 8% or 10%."

"Why do you do this?"

"Well," he says, "I do it that way because I figure that he has to work so much to pay for his groceries, and his rent. Any sales he gets the last week of the month are pure accidental anyway. So, I chisel a little bit to balance for the higher commission I pay him earlier in the month."

Salary Should Not Exceed 50% of His Needs

Then there's the question of what to do about the drawing account. Well, if any progress has been made at all in this subject of salesmen's compensation during recent years, it seems to be that it has been an increased understanding and appreciation on the part of most sales managers, and most dealers who deal with this subject, that you might as well throw the phrase "drawing account" out of the window, and pay the guy a salary instead.

But let's have the salary small. Let's work on the basis that if you're going to advance a retail salesman money, never give him more than 50% of what you think it takes him to get by on. Don't take his word for it. You figure up what he needs. If you want to give him financial assistance, let us not exceed 50% of what he needs. Boy, he can't hold out on 50% very long. He's going to have to sell something.

Straight Commission Is Best But It Is Hard To Administer

Then there's the straight commission, which, of course, is the finest of all methods of paying salesmen. There's nothing finer, either for the company or the salesmen.

But it's difficult for the average dealer, who is not a professional sales manager, to administer it. We are recommending to small dealers, at least, that they operate their salesmen on 50% of the net. We've got some dealers that are very, very happy with it, too.

The one advantage of paying your salesmen 50% of the net is that it makes them practically self-managing. You don't have to worry about them so much.

Sometimes in retail selling we have to make a concession. Make a deal. It comes midnight and both the customer and the salesman are exhausted. The customer is stubborn and he's going to get a concession if it takes all night. We never cut price. But we make a deal.

Now, if this fellow makes a deal . . . if he sells the prospect that display model that he's got in the shop, the one with the dent in the left-hand panel, and if he cuts $40 off the price to close the sale tonight both the salesman and the customer are floored by exhaustion . . . and if he gets it closed, your salesman has taken $20 out of his own pocket as well as the $20 out of your pocket. This makes him kind of self-managing, doesn't it?

When you move into larger type sales organizations where you have more people involved, this becomes a rather impractical method, and you have to go back to the straight percentage method of paying your sales people. But for the next year or so, I don't think that we're going to be burdened with large sales organizations. So that's a subject that we can leave for a later convention, what to do with the 15 or 20-men sales organizations. We'll take that up next year.

Most Important: Pay Him And Pay Him Enough

The principal thing about paying salesmen is that you **pay** them. It isn't very important how you pay them, it's just important that you pay them enough, and it's particularly important that you pay them. The fellow who has batted around in three or four sales jobs before he wound up with you has become accustomed to the idea of getting gypped out of his commission. So, treat him like a man, and pay him what he's got coming, and try to find a way to pay him a little more than he's got coming. The psychological effect on him will be tremendous.

And then let's think about his making money once in a while. Just for the plain hell of it, say to him someday, "Listen, Jack, I've got an idea. Go out and sell a deluxe job this month. And every time that you sell that clock thermostat for $60 there's $25 net in it, you get the whole thing."

You can afford on occasion to sell a thousand dollar system and an additional $60 product and just settle for the profit on the thousand dollars system. Couldn't you give just that much? And make your salesman prosperous.

FROM HONEYWELL . . ANOTHER DIAMOND JUBILEE EVENT!

On Your Own Local Radio Station!

RELIABLE WEATHER FORECASTS FROM WORLD-FAMOUS KRICK WEATHER SERVICE

Dr. Irving P. Krick, President of Irving P. Krick Associates, Denver, Colorado, ranks as one of the world's outstanding meteorologists. With electronic computers and a scientific system of calculating rhythms in the weather, he has brought weather forecasting to a high degree of perfection. Dr. Krick's seasonal clients number in the hundreds, ranging from home builders to major corporations and the 1960 Winter Olympics. Almost all have success stories resulting from Krick predictions.

COAST TO COAST ON ALL THE MONITOR STATIONS

Albuquerque, N.M.—KOB
Alexandria, La.—KSYL
Allentown, Pa.—WSAN
Appleton, Wisc.—WATZ
Austin, Tex.—KVLF
Amarillo, Tex.—KGNC
Atlanta, Ga.—WSB
Augusta, Ga.—WBIA
Augusta, Me.—WRDO

Bakersfield, Calif.—KGEE
Baltimore, Md.—WBAL
Bangor, Me.—WLBZ
Baton Rouge, La.—WJBO
Battle Creek, Mich.—WBCK
Billings, Mont.—KGHL
Binghamton, N.Y.—WINR
Birmingham, Ala.—WAPI
Bismarck, N.D.—KFYR
Bluefield, W. Va—WHIS
Boise, Idaho—KIDO
Boston, Mass.—WEZE
Bozeman, Mont.—KXLJ
Bristol, Tenn.—V.—WOPI
Buffalo, N.Y.—WGR
Butte, Mont.—KXLF

Cadillac, Mich.—WATT
Calais, Me.—WQDY
Charleston, S.C.—WTMA
Charleston, W. Va.—WKAZ
Charlotte, N.C.—WSOC
Charlottesville, Va.—WINA
Chattanooga, Tenn.—WDEF
Chicago, Ill.—WMAQ
Cincinnati, Ohio—WLW
Clarksburg, W. Va.—WBOY
Cleveland, Ohio—WJW
Columbia, S.C.—WIS
Columbus, Ga.—WDAK
Cumberland, Md.—WTVO

Dallas, Tex.—WFAA
Davenport, Ia.—WOC
Denver, Colo.—KOA
Des Moines, Ia.—WHO
Detroit, Mich.—WWJ
Douglas, Ariz.—KAWT
Duluth, Minn.-Superior, Wis.—WDSM

Easton, Pa.—WEST
Eau Claire, Wis.—WEAQ
Elkhart, Ind.—WTRC
Elmira, N.Y.—WENY
El Paso, Tex—KTSM
Eugene, Ore.—KUGN
Evansville, Ind.—WGBF
Fargo, N.D.—WDAY

Flagstaff, Ariz.—KCLS
Fort Myers, Fla.—WFDF
Fort Pierce, Fla.—WIRA
Fort Wayne, Ind.—WKJG
Fort Worth, Texas—WBAP
Fresno, Calif.—KMJ

Gainesville, Fla.—WRUF
Garden City, Kans.—KIUL
Globe, Ariz.—KIKO
Grand Rapids, Mich.—WOOD
Great Falls, Mont.—KXLK
Greenville, S. Car.—WFBC
Greenwood, Miss.—WGRM
Greenwood, S. Car.—WCRS

Hampton, Va.—WVEZ
Harrisburg, Pa.—WKBO
Harrisonburg, Va.—WSVA
Hartford, Conn.—WTIC
Hattiesburg, Miss.—WFOR
Havre, Mont.—KOJM
Hazleton, Pa.—WAZL
Helena, Mont.—KXLJ
Hibbing, Minn.—WMFG
Houghton, Mich.—WHDF
Houston, Texas—KPRC
Huntington, W. Va-Ashland, Ky.—WSAZ
Hutchison, Kans.—KWBW

Indianapolis, Ind.—WIRE

Jackson, Miss.—WJDX
Jacksonville, Fla.—WJAX
Johnstown, Pa.—WJAC

Kalispell, Mont.—KGEZ
Kansas City, Mo.—WDAF
Kingsport, Tenn.—WKPT
Knoxville, Tenn.—WATE

La Crosse, Wis.—WKBH
Lafayette, La—KVOL
Lake Charles, La.—KPLC
Lakeland, Fla.—WLAK
Lancaster, Pa.—WGAL
Lansing, Mich.—WJIM
Laurel, Miss.—WAML
Lewiston, Pa.—WMRF
Lexington, Va.—WREL
Little Rock, Ark.—KARK
Los Angeles, Calif.—KFI
Louisville, Ky.—WAVE
Lubbock, Texas—KCBD

Madison, Wis.—WIBA
Manchester, N. H.—WGIR
Mankato, Minn.—KYSM
Marietta, Ohio—WMOA
Marinette, Wis.—WMAM
Martinsville, Va.—WMVA

Medford, Ore.—KMED
Memphis, Tenn.—WMC
Miami, Fla.—WCKR
Milwaukee, Wis.—WTMJ
Minneapolis, Minn.—See St. Paul
Missoula, Mont.—KXLL
Mobile, Ala.—WALA
Monroe, La.—KMLB
Montgomery, Ala.—WHHY
Morgantown, W. Va.—WAJR

Nashville, Tenn.—WSM
Natchez, Miss.—WMIS
New Orleans, La.—WDSU
New York, N. Y.—WRCA
North Platte, Neb.—KODY

Odessa, Tex.—KRIG
Oil City, Pa.—WKRZ
Omaha, Neb.—KFAB
Orange, Va.—WJMA
Orlando, Fla.—WKIS

Paducah, Ky.—WDXR
Pecos, Tex.—KIUN
Pensacola, Fla.—WCOA
Peoria, Ill.—WEEK
Petoskey, Mich.—WMBN
Philadelphia, Pa.—WRCV
Phoenix, Ariz.—KTAR
Pittsburg, Kans.—KOAM
Pittsburgh, Pa.—WAMP
Pocatello, Idaho—KSEI
Portland, Me.—WCSH
Portland, Ore.—KGW
Prescott, Ariz.—KYCA
Providence, R. I.—WJAR
Raleigh, N. C.—WPTF
Reading, Pa.—WRAW
Reno, Nev.—KOH
Richmond, Va.—WRVA
Roanoke, Va.—WSLS
Rochester, Minn.—KROC
Rochester, N.Y.—WVET
Roswell, N.M.—KSWS
Sacramento, Calif.—KCRA
Saginaw-Bay City, Mich.—WSAM

St. Cloud, Minn.—KFAM
St. Louis, Mo.—KSD
St. Paul, Minn.—KSTP
Salem, Ore.—KBZY
Salt Lake City, Utah—KCPX
San Antonio, Tex.—WOAI
San Diego, Calif.—KFSD
San Francisco, Calif.—KNBC
Santa Barbara, Calif.—KTMS
Savannah, Ga.—WSAV
Schenectady-Albany-Troy, N.Y.—WGY
Scranton, Pa.—WSCR
Seattle, Wash.—KING
Selma, Ala.—WHBB
Shreveport, La.—KENT
Sioux Falls, S.D.—KELO
Spartanburg, S.C.—WORD
Spokane, Wash.—KHQ
Springfield, Ill.—WMAY
Springfield, Mo.—KGBX
Syracuse, N.Y.—WSYR

Tampa, Fla.—WFLA
Toledo, Ohio—WSPD
Traverse City, Mich.—WTCM
Tucson, Ariz.—KTAN
Tulsa, Okla.—KVOO
Twin Falls, Idaho—KTFI

Virginia, Minn.—WHLB
Washington, D.C.—WRC
Wausau, Wis.—WSAU
Weirton, W. Va.—WEIR
Weslaco, Tex.—KRGV
West Palm Beach, Fla.—WEAT
Wilkes-Barre, Pa.—WBRE
Williamsport, Pa.—WRAK
Wilmington, Del.—WDEL
Winston-Salem, N.C.—WSJS
Worcester, Mass.—WAAB

Yakima, Wash.—KIMA
York, Pa.—WORK
Youngstown, Ohio—WFMJ
Yuma, Ariz.—KYUM

Zanesville, Ohio—WHIZ

Honeywell
First in Control
75th YEAR PIONEERING THE FUTURE
SINCE 1885

Detroit Heating Contractors Set Up Research Lab To Test Duct Fittings

By George M. Hanning

DETROIT—A research laboratory to determine the pressure loss and air flow characteristics of air conditioning duct systems was established recently by the Better Heating and Cooling Bureau here.

The bureau is an organization of local heating and air conditioning contractors devoted to uplifting the general level of installations in this area.

Part of that effort is to approve fittings that will do the job expected of them. Under the residential warm air heating code which the bureau has established as an installation standard for member contractors, fittings must be tested by authorized testing laboratories and approved by BHCB prior to their use.

The laboratory is located in the Detroit Apprentice Training School. Testing equipment was set up by trainees under the direction of Darwin A. Downing, sheet metal instructor at the school.

Dr. Lorin E. Miller, dean emeritus of Michigan State university, and Ed Root, professional engineer, are conducting the tests. Both are consultants to BHCB.

First project, now under way, is a study of the performance of top takeoff fittings for extended plenum trunk line systems and graduated trunk line systems where reductions are not made after each takeoff.

Fittings are being tested for flexibility and ease of manufacture as well as effectiveness.

Testing apparatus, set up in the balcony of what was once the school's auditorium, consists of a 1,200 c.f.m. blower, a 12 by 9-in. extended plenum about 30 ft. long, and a 5-in. branch duct connected at a 90° angle to the plenum through a top takeoff fitting. A 6-in. branch duct has also been used.

After leaving the blower, air passes through a venturi type meter with 4 or 6-in. throat where a Pitot tube measures its velocity.

The air then enters a drum plenum 3 ft. in diameter where air is mixed to get even pressure. The drum shape is used to eliminate breathing in the plenum, Dr. Miller noted.

As air enters the plenum, it passes through an egg crate air straightener to cut turbulence to a minimum.

Static pressure in the plenum is measured 3 ft. before the top takeoff fitting. It is measured again by a Piezometer ring around the 5-in. branch duct 4 ft. after the takeoff.

Then the air passes through a sharp-edged orifice half the diameter of the pipe. Pressure is measured again beyond this orifice to determine the pressure drop through it.

Pressures are read all along the system by manometers. Miller and Root take their data from the manometers and plot their findings on graphs to determine performance curves.

Dampers on the plenum en-

TAKING DATA OFF manometers to determine air flow resistance of top takeoff fitting at lower left are Ed Root, professional engineer (l.) and Dr. Lorin E. Miller, dean emeritus of Michigan State university.

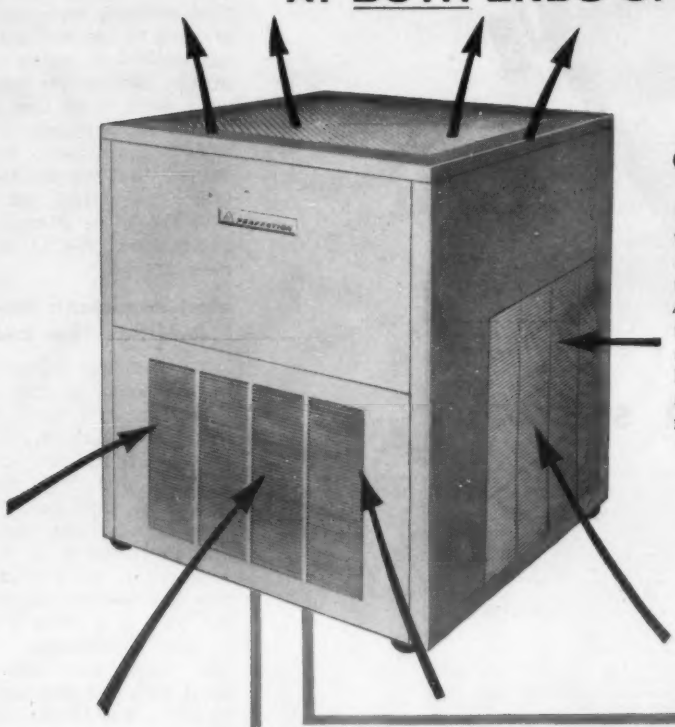
OVER-ALL VIEW OF testing apparatus shows circular drum plenum at right. Fitting seen in front of it is a standard top takeoff to which the subject fitting is being compared.

PERFECTION

REMOTE

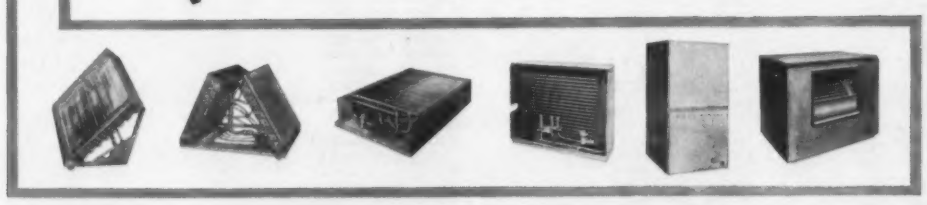
AIR CONDITIONERS EASIEST TO INSTALL...

AT BOTH ENDS OF THE LINE



OUTSIDE

Locate the remote condensing unit wherever you want it. Perfection's exclusive direct upflow air movement exhausts air from the *top* of the unit, where it won't hurt nearby grass or shrubs. And the big, belt-driven fan is whisper-quiet in operation — no noise problem. Complete selection of sizes in the popular two through five horsepower size range — a single unit handles most jobs, or combine them for larger commercial requirements.



INSIDE

Nothing makes an installation easier than having exactly the right inside components to fit the job. And you have them when you use Perfection. "A" coils, angle coils, flat coils, coil and blower combinations —anything you need for any job, for use with a warm air furnace or independently.

BE A PERFECTIONIST!

See your nearby Perfection distributor for full information on the complete Perfection line — air conditioners, heat pumps; gas, oil and electric warm air furnaces. Ask him for the free booklet "How to become a PERFECTIONIST." If you don't know him, ask us for his name.

PERFECTION DIVISION

HUPP CORPORATION

CLEVELAND 10, OHIO

NEW

TAMPER PROOF TUBE PIERCING VALVE

MADDEN HP-41A

No handle discourages tampering. Operated by Allen wrench.

- Easiest to use, all in one piece
- V-block and lock nut combined in one unit
- Mounts in any position
- Cuts installation time

General Purpose VALVES

New Madden Forged Brass Body valves for testing, charging, purging and other uses. Also available for panel mounting. Feature easy-grip handles and Teflon seats for positive shut-off.

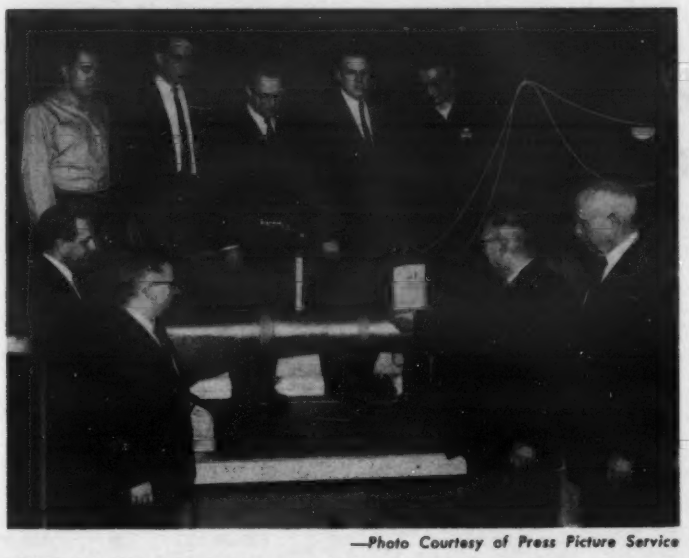
See your MADDEN Wholesaler

MADDEN BRASS

MADDEN BRASS PRODUCTS COMPANY

AURORA 6, ILLINOIS, U.S.A.

EXPORT: Ad Auriema 85 Broad St., New York, N. Y.



—*Photo Courtesy of Press Picture Service*

INSPECTING THE NEW research laboratory and examining the venturi type meter which is the first recording station, are (back row, l. to r.) Michael Rajter, apprentice; Herbert Gilkey, director of technical services of National Warm Air Heating & Air Conditioning Association; George Asher, executive secretary of the Detroit Better Heating and Cooling Bureau; F. R. Patterson of the Detroit office of the Federal Housing Administration; and Darwin A. Downing, sheet metal instructor. Front row: R. J. Waalkes, Hart & Cooley Mfg. Co.; Fred Primeau, Detroit FHA; Miller; and Root.

* * *

able the technicians to regulate the amount of air passing through the fitting so as to simulate its position anywhere along the trunk.

Thus performance is tested when the fitting would be the first takeoff, the last takeoff, or located anywhere in between.

While not ready to release any data yet on this particular type fitting, Dr. Miller commented that work done so far indicates that it will make a considerable difference in effective length of the fitting whether it is the first or last takeoff on the extended plenum.

Initial studies indicate that this particular fitting gives good performance if it is the last fitting on the trunk. But if it is the first takeoff, it is hard to induce air through it.

According to George Asher, secretary of BHCB, the laboratory will serve a dual function: research and instruction.

While research activity will be conducted on a continuing basis, the apparatus will help teach sheet metal apprentices and journeymen what happens to air in a duct.

It will also serve to instruct local heating inspectors on what to look for when inspecting heating distribution systems.

Carrier Appoints 3 Regional Managers

SYRACUSE, N. Y. — Carrier Corp. has appointed three regional managers to handle sales of its unit heaters in the northeast, south, and east central regions of the country.

M. Everett Barnard, product sales manager, announced that Maurice Merlin has been named regional manager for the northeast with headquarters in Philadelphia. Merlin has sold Carrier unit heaters for 15 years.

James P. McLaughlin will be responsible for unit heater sales in the south and southwest from headquarters in Atlanta. Oliver M. Murphy will act in a similar capacity in the east central region. His office will be in Cleveland.

Cites 'Total Electric Living' Concept

Witting Recommends 'Systems-Selling Technique' To Promote New Housing

PITTSBURGH — Promoting and selling an entire home—not just its components such as innovations in appliances, design, and construction materials — was cited as the needed breakthrough for encouraging the nation's urban redevelopment efforts.

Chris J. Witting, vice president and general manager-consumer products group, of Westinghouse Electric Corp., told delegates attending the ACTION - Housing conference here that "industry, using marketing techniques that have built our economy to its present high standard, can lead the way in building consumer appetite for new housing."

To stimulate the needed consumer interest for a new house, not just innovations, Witting recommended the "systems-selling technique" whereby a "central theme" is used to promote all the products, including the house.

As an example of such a move, he described the "Total Electric Living" concept introduced by Westinghouse.

"Public and building response to our program was extraordinary," he said, "and letters by the thousands came from all parts of the country.

"The test market—Roanoke, Va.—where a local builder decided to build one of these homes as a model caused tremendous excitement. In a period of nine months, nearly 300 Total Electric Homes were built in the Roanoke area . . . our appliance sales in the area increased 222% . . . our electric heat sales increased 194%.

"Overnight, Westinghouse found itself in the business of promoting the sale of complete homes operated entirely by electricity — principally because it resulted in vastly increased product sales."

Changes for Schools Considered In L. A.

LOS ANGELES — Boiler rooms in schools would require a four-hour fire resistance separation for five types of occupancies in changes proposed by Los Angeles Board of Building & Safety Commissioners.

These and other changes will be subject to a public hearing April 21.

all copper WATER CHANNELS

now on all model SST shell and tube

CONDENSERS

Readily convertible from city to tower application

No. SST 500

- Maximum Resistance to Corrosion
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Most Advanced Design Available

These popular shell and tube condensers are now equipped with copperized tube sheets to prevent corrosion. More effective operation at less cost.

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Penn State Offers July Seminars On Engineering for Atomic Shelters

UNIVERSITY PARK, Pa.—Two engineering seminars on atomic shelter will be held this summer at The Pennsylvania State university.

The first, July 10-22, will deal with architectural and engineering planning aspects. This two-week short course is designed for architects and engineers who are now or will become involved in planning and preliminary design aspects of buildings, shelters, and facilities to resist the effects of nuclear weapons.

The course will include a summary of effects of atomic weapons, including blast, and nuclear and thermal radiation, functional requirements for protection, the relationship of various protection criteria to total system planning, and planning of integrated shelters systems with regard to the architectural, structural, electrical, mechanical, and sanitary sub-systems.

From July 24 to Aug. 5 will be the short course dealing with structural engineering and radiation shielding aspects. Topics will include analysis and design of structural systems and radiation shielding systems of buildings, shelters, and facilities to resist the effects of nuclear weapons.

There will also be a brief summary of atomic weapon effects data, blast loading of various structural systems types, ultimate strength theory, dynamic analysis and design methods, distribution, intensity, energy levels of nuclear radiation, and other important aspects.

More Units, Less Hp

Permits Paint Pictures of Detroit Air Conditioning Sales During 1959

DETROIT—A few more units but a little less horsepower was the air conditioning story in Detroit during 1959. An AIR CONDITIONING, HEATING & REFRIGERATION NEWS check of permits issued by the city's Department of Building & Safety Engineering shows that 1,470 units totaling 8,175.25 hp. were installed in the Motor City in 1959.

The accompanying tables break down permit information four ways: Sales by Unit Size; Sales by Make; Sales by Contractor; and Sales by Type of Establishment. The under 3-hp. units were installed more frequently than any other size

Installations by Type of Establishment

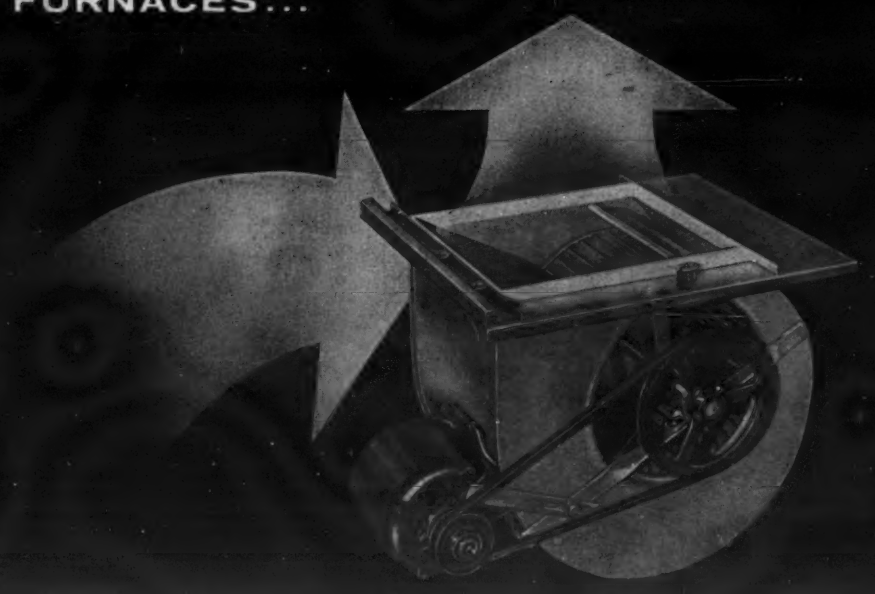
	1959		1958	
	Units	Hp.	Units	Hp.
Retail Establishments				
Food & Drug Stores	87	400.75	54	385.5
Eating & Drinking Places	140	864.6	98	656.3
Personal & Repair Services	35	145.33	71	333.5
Other Retail	104	684.0	72	465.5
Other Commercial Establishments				
Offices	496	3,141.5	305	3,802.3
Hotels & Motels	13	268.0	25	164.5
Institutions	59	304.50	154	1,296.0
Other Commercial	107	597.50	28	158.0
Unspecified Commercial	157	....	258	864.2
Industrial Establishments	63	413.0	55	901.5
Residences	209	610.50	177	589.2
Totals	1,470	8,175.25	1,297	9,617.0

* * *

Sales by Contractors

Contractor	Units	Hp.
1	138	365.75
2	90	746.50
3	88	465.75
4	54	249
5	54	235.33
6	51	262.25
7	49	114
8	40	156.50
9	36	232
10	36	169.75
11	34	163
12	31	61.25
13	30	262
14	30	592
15	28	151.50
16	27	105.50
17	26	97.25
18	26	132.50
19	25	486.50
20	24	114.50
21	20	66.25
22	19	67
23	19	42.50
24	18	60.50
25	18	123.75
26	17	135.50
27	16	140.50
28	15	140.50
29	15	58.25
30	14	25.75
31	14	66
32	14	64
33	13	78.50
34	13	105
35	13	20
36	11	52.50
37	10	29.83
38	9	35
39	9	30.50
40	8	27
41	8	31.50
42	8	37.50
43	8	28
44	8	11.50
45	7	24
46	7	31
47	7	85.50
48	7	19.50
49	7	29
50	6	15.75
51	6	14.25
52	6	83.50
53	6	20.50
54	6	19
55	6	23
56	6	5.75
57	6	38
58	6	108.50
59	5	21.50
60	5	187.50
61	5	98
62	5	22.50
63	5	23.50
64	5	15.66
65	5	157
66	5	21
67-78	12 at 4 for	231.16
79-82	4 at 3 for	52
83-91	8 at 2 for	60.50
92-122	30 at 1 for	132.50
Total	1,470	8,175.25

IT'S EASY TO SELL
THE VALUE LINE...
FRASER-JOHNSTON
AIR CONDITIONING
FURNACES...



The 13¼" diameter blower in all FRASER-JOHNSTON belt-drive furnaces is larger than most others in the industry. This means more air handling capacity at low tip speed – the secret of quiet operation. *Other values include:* rubber mounting, precision-ground steel shafting, Oilite bronze bearings, and slide-out blower and motor for easy service. All FRASER-JOHNSTON belt-driven furnaces are available with 0.6 in. AGA high static approval. Get acquainted with air conditioning's VALUE LINE. Write for catalog, prices and distributor opportunities.

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HI-LO VALVE
IT'S ECONOMICAL BECAUSE THERE'S ONLY ONE SIZE!
Saves time and effort while charging or purging systems, or taking guage readings. Available from your local wholesaler. Write us for details.
HI-LO VALVE MFG. CO., INC.
P.O. Box 3262 Okla. City, Okla.

Sales by Unit Size

Hp.	—No. of Units— 1959	1958
Under 3	512	283
3	293	309
5	327	365
7½	180	190
10	79	76
15	26	27
Over 15	53	47
Total	**1,470**	**1,297**

* * *

Sales by Makes

Make	Units	Hp.
1	218	1,251.25
2	210	1,448.75
3	190	800.25
4	189	684.58
5	95	489.25
6	71	362.59
7	43	96.50
8	37	489.08
9	36	655
10	23	53.50
11	20	81.75
12	19	116.75
13	19	309.50
14	14	51
15	13	89.50
16	13	53
17	12	40.50
18	11	15.50
19	10	59
20	10	36
21	8	140
22	8	9.58
23	7	18.50
24	7	35.50
25	7	29
26	6	135
27	5	18
28	5	10
29	4	11
30	4	6.50
31	4	15.50
32	4	23
33	3	10
34	3	15
35	3	5.75
36	3	2.50
37	3	11
38	3	3.33
39	2	4
40	2	8
41	2	10
42	2	3
43	2	5.50
44	2	8
45	2	3.50
46	2	150
47	1	2
48	1	.75
49	1	3
50	1	3
51	1	5
52	1	3
53	1	3
54	1	2
55	1	3
56	1	2
57	1	3
58	1	40
59	1	.33
60	1	1.50
Unspecified	100	229.26
Total	**1,470**	**8,175.25**

unit, a distinction formerly held by the 5-hp. units.

There were no large air conditioning installations in the city during the year and offices continue to represent the largest single market for air conditioning. A total of 496 offices were air conditioned compared with 305 during 1958. Residential installations were up to 209 compared with the 177 recorded in 1958.

108 used air conditioning units totaling 517 hp. were installed. 420 remote-type air conditioning units totaling 2,824 hp. were included in the total installations.

122 contractors obtained permits in 1959, while 132 were represented in 1958. As in the past it is felt that the City installations represent about one-half of the total area installations. As usual the top 10% of the contractors accounted for approximately 50% of all installations.

SEND FOR REPRINTS
"ELECTRICAL CHARACTERISTICS OF PACKAGED AIR CONDITIONING UNITS."
Only 25¢ each.
For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News. 450 W. Fort, Detroit 26, Mich.

Air Conditioning Will Preserve Books at New Case Tech Library

CLEVELAND — Air conditioning equipment supplied by Carrier Corp. will play an important role in the new $2.5 million Library and Humanities Center at Case Institute of Technology here.

Dr. Frederick L. Taft, director of libraries at Case, said an essential function of the air conditioning system will be to protect the library's collection of books, paintings, and musical recordings from mildew and warping.

The system, which will change inside air six times every hour, also will "provide an atmosphere more conducive to learning," Taft said.

The six-story center was designed by the Cleveland architectural firm of Small, Smith, Reeb & Draz to serve off-campus residents as well as the Case student body and faculty. Construction is expected to be completed by January, 1961.

The air conditioning equipment will be located in a penthouse atop the block-type structure to permit full use of the building's 90,500 sq. ft. of interior space.

The contract awarded Carrier by Spohn Heating & Ventilating Co., mechanical contractor, includes an electronically controlled water chilling machine which provides cooling equal to the daily melting of 250 tons of ice, it was noted.

Additionally, 153 "Weathermaster" air conditioning units will be located under the windows. The system will use high velocity air, reducing the size of air handling components.

The first floor of the new center will be devoted to book storage. The second will contain microcard and microfilm readers, study cubicles, and a music appreciation room.

Library, conference, and meeting rooms will be located on the third floor with lecture and class rooms for humanities, social studies, and mathematics on the fourth.

Sam W. Emerson Co. is the general contractor. McGeorge-Hargett & Associates is the consulting engineer.

Bohn Issues Bulletin

DANVILLE, Ill.—Publication of Bulletin 181 on the Bohn model BH residential evaporator has been announced by the Danville Div., Bohn Aluminum & Brass Corp.

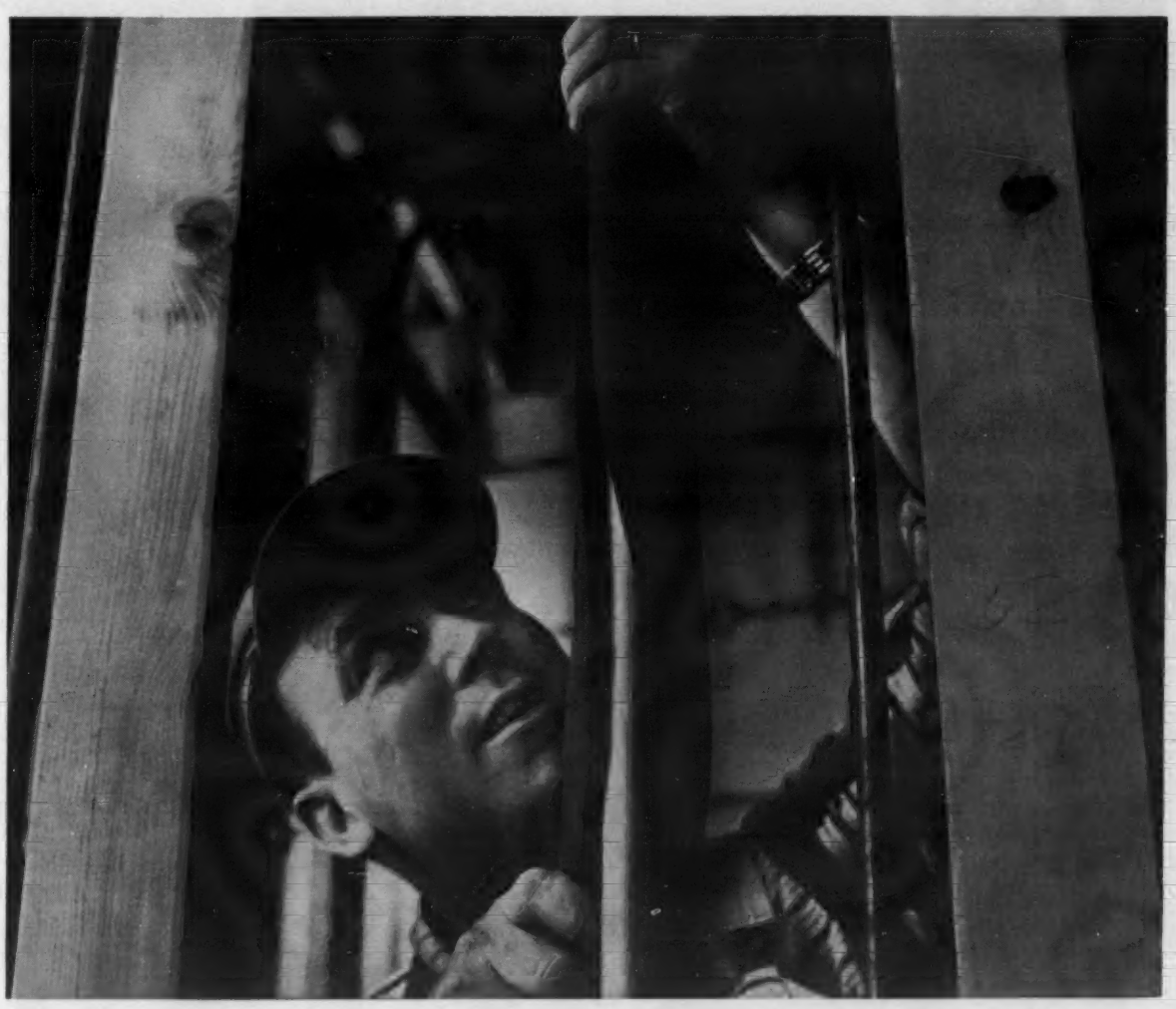
5,750 Tons

Is Chicago's Largest Refrigeration Contract

CHICAGO—Announcing that an air conditioning system will be installed by York Div. of Borg-Warner Corp. in the Chicago Post Office building, R. E. Miller, central regional manager for York, said the agreement covering the installation is believed to be the largest single contract for refrigeration equipment ever placed in the Chicago area.

The system includes two 2,250-hp. and one 1,250-hp. "Turbo-Master" water cooling units. The smaller one is scheduled to be put into operation July 1 and the other two about Nov. 1.

George D. Hardin, Inc. is the prime contractor on the building project.



Easy as wrapping a bun around a weenie

LABOR COSTS FOR INSULATING LINES CUT IN HALF BY B.F.GOODRICH CELL-TITE INSULATION TUBING

EVEN when pipe has already been connected, B.F.Goodrich insulation tubing can be slit, snapped on and cemented in seconds. And, if you prefer, you can get it pre-slit for even faster installation. Slitting is unnecessary for new lines—it slips on straight or bent pipe as easily as a ring on your finger. Installation is so fast that labor costs for insulating pipe can be cut 50% or more over old-fashioned twine-wrapping, skirting and other slower methods.

B.F.Goodrich insulation tubing is made of a tough, flexible rubber with millions of uniform, non-connecting cells that seal out air and moisture. It can be used for insulating pipes carrying hot or cold liquids at temperatures ranging from —20°F to 200°F. Clean and easy to work with, doesn't rub off, chip or crumble. It comes in 6-foot lengths, in many wall thicknesses, that are easy to handle, easy to store.

This BFG insulation is also self-extinguishing, so it can be installed on copper tubing before sweat fittings are made—tubing is merely pushed back and held by clamps while joint is soldered.

Try this labor-saving insulation on your next job. For full information on BFG insulation tubing, call your B.F.Goodrich distributor, or contact *The B.F.Goodrich Company, 180 Derby Place, Shelton, Conn.*

INSULATION TUBING BY B.F.Goodrich

'Search' Designed To Pinpoint Small Leaks

● Availability of its new liquid leak detector, "Search," has been announced by Watsco, Inc., Dept. AH&RN, 1020 East 15th St., Hialeah, Fla.

"Search is a special formula designed to pin point the slightest leak upon application to the suspicious area," the company said. "Its high viscosity enables Search to cling and wrap itself around the tubing or fitting to cover all possible leakage points."

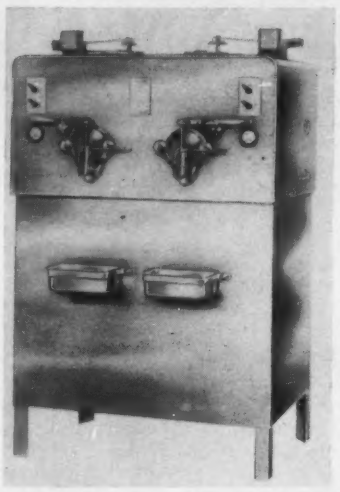
Search is contained in an unbreakable squeeze-type bottle with a self-applicator. Since it incorporates no open flame, it can be used for auto air conditioning.

Welding Fittings Line Expanded by Nibco

● Addition to its line of "Husky" welding fittings, designed for non-critical installations, has been announced by Nibco, Inc., Nibcosteel Div., Dept. AH&RN, 500 Simpson St., Elkhart, Ind.

When the Husky line was introduced, it included 45° and 90° elbows, straight and reducing tees, and concentric reducers in a 2 through 6-in. range of sizes. Now Nibco has added eccentric style reducers and increased the size range to include 1, 1¼, and 1½ in.

Soft Ice Cream Freezer Claims Speed, Economy

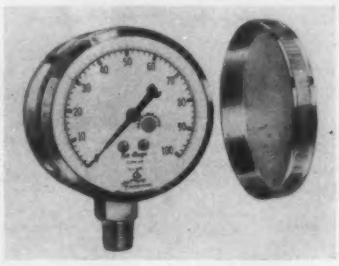


● A departure in the design and construction of continuous soft ice cream freezers called "Arctic Zone" is now available in two models from Freez King Corp., Dept. AH&RN, 2518 West Montrose Ave., Chicago 18.

Arctic Zone is a special area of the freezer cylinder in which the mix is aerated and semi-frozen and the freezing and dispensing processes are greatly speeded, the company said. In addition, reduced speed agitation provides more economical operation, it was stated.

Model 975-5 twin freezer has a 12-g.p.h. capacity and 3-gal. mix reservoir on one side and an 18-g.p.h. capacity and 5-gal. reservoir on the other. This model is actually two freezers in one, with two 1-hp. condensing units and two 1-hp. dasher motors. Two different flavors can be served or one side may be used for direct-draw shakes.

Model 925-5 dispenses soft ice cream and is also a shake dispenser, with maintained overrun, according to Freez King.



Marsh Test Gauges Designed for Boilers

● Marsh Type 28 test gauges, expressly designed for inspectors of boilers, air brakes, and similar pressure systems, have been introduced by Marsh Instrument Co., Dept. AH&RN, 3501 Howard St., Skokie, Ill.

The gauges are manufactured in heavy brass cases with knurled screwed ring giving quick access to the Marsh "Recalibrator."

All gauges are 3 in. dial size: 11 pressure ranges from 0-15 through 0-1,000 p.s.i.; seven compound ranges from 30 in. by 15 p.s.i. through 30 in. by 300 p.s.i.

Pipe-Mate Fittings Now Made of Aluminum

● Addition of aluminum and other alloys to its low-cost line of light wall "Pipe-Mate" fittings and flanges was announced by Tube Turns Div. of Chemetron Corp., Dept. AH&RN, Louisville, Ky.

Pipe-Mate fittings of Type 6063-T6 high strength aluminum alloy will be available in ⅛ in. to 4 in. pipe sizes, Schedule 10S. Other aluminum alloys are also available, Tube Turns said, as are nickel, Monel, copper-nickel, and most other weldable alloys.

The company said that light wall aluminum fittings have many potential applications, including air conditioning. The new fittings feature long tangents that permit easy alignment of pipe and fittings and permit fabrication of completely flanged elbows, returns, tees, and crosses, it was stated.

Budget-Class Room Unit Offered by Frigidaire

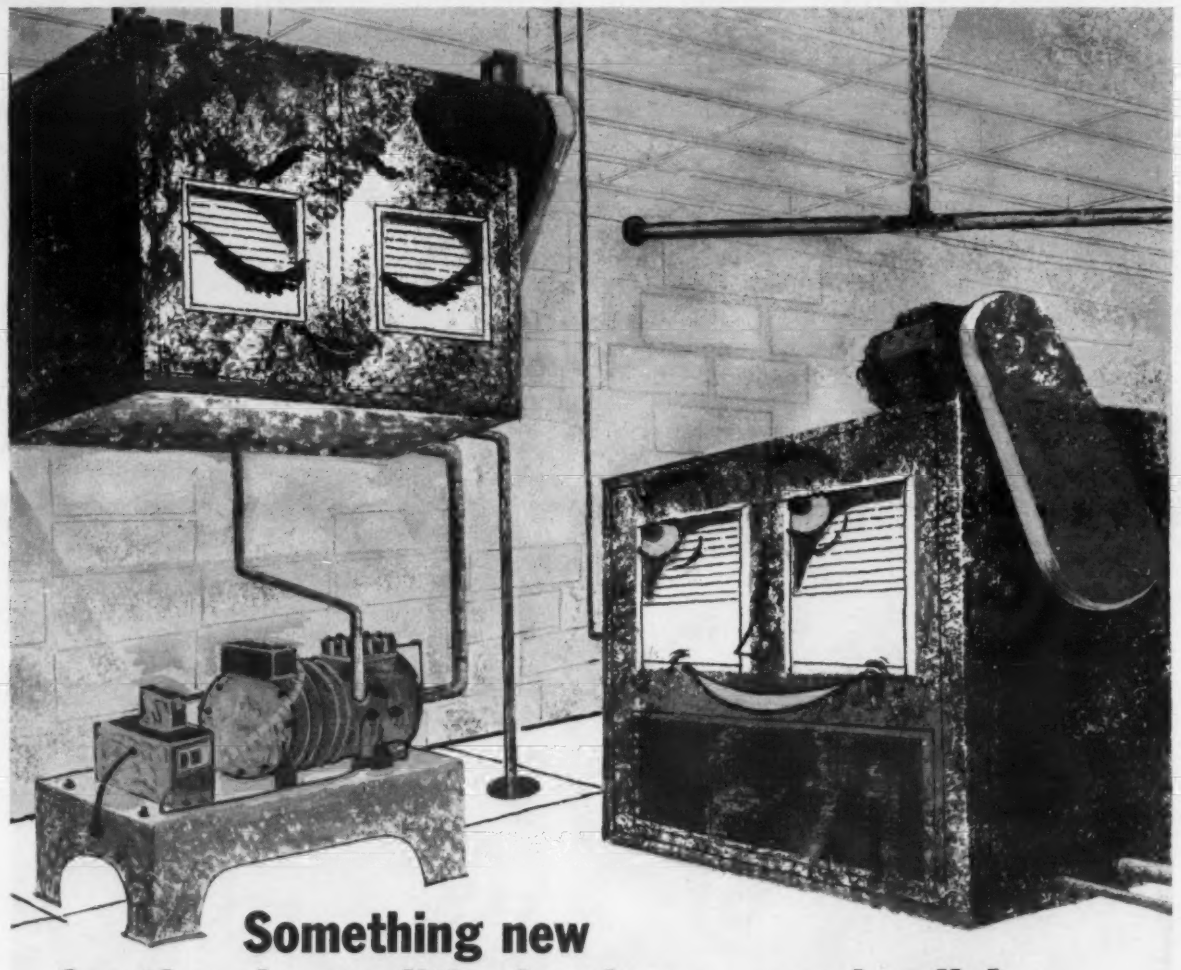
● A new budget-class 115-volt room air conditioner of shallow-depth design and 6,000 B.t.u. of cooling capacity has been announced by Frigidaire Div., General Motors Corp., Dept. AH&RN, Dayton 1.

Simplicity of operation and flexibility of application are featured, it was stated. A single dial controls cooling. The unit operates on an ordinary 115-volt household circuit, drawing only 7½ amperes.

Only 15¾ in. deep, 20⅛ in. high, and 25 in. wide, the unit can be mounted in any regular window, above or below, and completely inside or outside the room, and it also can be installed in casement windows, according to Frigidaire. The cooling system makes it possible for this unit to remove as much as 1.6 pints of moisture from the air each hour in addition to cooling, it is claimed.

"The conditioner is equipped with a fibrous glass air filter."

Known as the Super 100L, the air conditioner has a suggested retail price of $219.95.



Something new for the air conditioning boys... and coils!

Now, Air Handlers from Halstead & Mitchell in 880 to 47,500 CFM Range

AH Series Air Handling Units

Before you buy any Air Handler, check and compare these new H&M units, feature for feature and price for price.

See how easily H&M Air Handlers accommodate matching cooling and heating coils, with space for up to 12 rows of coil depth overall! If you like, H&M coils (from 2 to 68 square feet of face area) can be factory-installed, leaving protruding connections on either side for easy hook-up. Halstead & Mitchell makes the coils you need to match: direct expansion, chilled water, hot water, standard or non-freeze steam. Filter sections are also available.

Performance? H&M Air Handlers deliver air against static loads up to 2-inches water gauge, and do it quietly.

Construction? They're the sturdiest units in the field. Forward curved centrifugal blowers are enclosed in a heavy gauge cabinet featuring formed steel corner posts and flush mounted panels.

Price? Just ask your H&M distributor. You'll be pleased. He has all the engineering information, too. Or, you can write for Bulletin AHU-100, Halstead & Mitchell, Bessemer Building, Pittsburgh, Pa.

HM Halstead & Mitchell

Air Handlers • Finned Coils • Air-Cooled Condensers • Cooling Towers • Water-Cooled Condensers

What's New

Cooler-Freezer Is Three Units In One

● A new expandable reach-in, walk-in cooler-freezer that combines three separate units into one space-saving cabinet is offered by Elliott-Williams Co., Inc., Dept. AH&RN, 3737 Sutherland Ave., Indianapolis 18.

"The front compartment, refrigerated to 35° F., is a conventional reach-in, walk-in combination refrigerator," the company explained. "It may be reached through a flush walk-in door, and through three reach-in doors. Large volume walk-in storage is provided for bulk goods, while smaller items may be stored on three aluminum shelves convenient to the reach-in doors. A walk-in freezer compartment for bulk storage of frozen foods is reached through the refrigerator section.

The exterior may be finished in aluminum alloy, porcelainoid enamel, or stainless steel. Unlimited size combinations are offered.

Triple Action Flux Precleans Metal

● Its "Scavatin" general-purpose soldering flux combines a new chemical action that precleans the metal, according to Farrelloy Co., Dept. AH&RN, 1243-45 North 26th St., Philadelphia 21.

For copper, bronze, brass, sheet steel, terne plate, and galvanizing, Scavatin is a new triple action flux formula that reduces time and effort in soldering and gives added fluidity to solder as a bonus.

"Scavatin automatically goes to work on application," it was explained. First, it wets through dirt, oil, or grease. Secondly, it starts to clean and brighten the metal. Thirdly, Scavatin on application of heat starts immediately to reduce and suspend the surface oxide while its calalytic action increases the fluidity of solder and produces a joint of high tensile strength and greater ductility."

The material is packed in 4-oz. squeeze-type bottles at six for $3.25 f.o.b. Philadelphia. Gallons are $4.25 each less 10% on 6-gal. quantities.

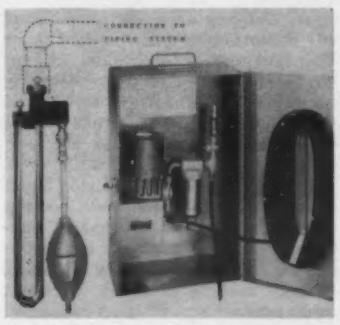
Make Pipe Joint Sealer In 4 Widths

● "Thred-Tape" pipe joint sealer is now offered in four widths —¼, ½, ¾, and 1 in.—permitting selection of the size best suited to the joint to be sealed, it was announced by Crane Packing Co., Dept. AH&RN (AG-8), 6400 Oakton St., Morton Grove, Ill.

It is generally recommended that Thred-Tape be used as follows: ¼ in. width for pipe to ½ in., ½ in. width for pipe from ½ in., ¾ in. width for pipe from 2 in. to 4 in., and 1 in. width for pipe 4 in. and over.

Made of chemically-inert du Pont "Teflon," Thred-Tape "withstands thousands of pounds of pressure, temperatures from -250° to 500° F., and can be used on all types of piping."

Manometer Detects Leaks by Pressure Loss



● Its Eclipse "De-Tekta-Leak" is a simple device which makes it easy to check for leaks in gas piping systems, refrigeration systems, and others, according to the Combustion Div., Eclipse Fuel Engineering Co., Dept. AH&RN, 1100 Buchanan St., Rockford, Ill.

It consists basically of a U-tube manometer with necessary connection fittings and a rubber bulb or small power-driven pump to build up pressure in the system.

"A leaktight shutoff cock is provided to seal off the system after it has been pumped up," the division explained. "Then it's simply a matter of watching the manometer to see if the indicated pressure is retained. Loss of pressure indicates a leak. Needle valves are provided for preventing loss of fluid from the manometer when the instrument is not in use."

Westinghouse Adds 10, 15 Ton Remotes

● Two new remote air conditioning systems with nominal capacities of 10 and 15 tons have been introduced by Westinghouse Air Conditioning Div., Dept. AH&RN, P. O. Box 510, Staunton, Va.

These units extend the present line of Westinghouse air-cooled remote air conditioning systems to a total of eight units in sizes from 2 to 15 tons.

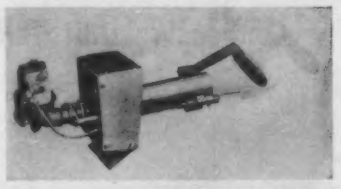
The outdoor sections—the condensing units—include high-capacity condenser coils located on each side of the unit, it was stated. Other features of the outdoor sections are vertical discharge propeller fans and a low silhouette for roof-top mounting.

"The units are equipped with twin compressor systems, each with a matching fan and coil unit, that can be turned on individually to give half-capacity operation for light cooling loads," the announcement said. "In addition, the outdoor condensing units can be used separately with two 5-ton or 7½-ton fan-and-coil units to provide zone control if desired.

"A built-in time delay relay in these new systems permits step starting to meet electric utilities' starting limitations in certain areas."

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.



Conversion Burner Has Adjustable Venturi

● "Tele-Tube," a versatile gas conversion burner, features an adjustable venturi, which telescopes from 6½ in. to 13½ in., to fit most furnace and boiler entrances, according to Barber Mfg. Co., Dept. AH&RN, 1052 East 134th St., Cleveland 10.

Designed specifically for changeovers from oil to gas (including liquid propane), the Tele-Tube fits 95% of all existing furnaces, the company said.

"Produced principally from 16-gauge stamped and welded steel, the entire compact unit weighs only 13 lbs., yet delivers 50,000 to 225,000 B.t.u.," it was stated.

FOR BIGGER PROFITS

SELL SCOTSMAN'S GOLDEN 50!

YOU MAKE MORE MONEY with Scotsman because you can offer the right ice machine to *fit any ice need!* You have *more* to offer prospects—50 Super Flakers, Super Cubers, Bins and Dispensers—*more* places to cash in on the Scotsman line!

AND SCOTSMAN HELPS YOU sell these prospects! Effective national ads . . . a new book, "How to Use an Ice Machine" to leave with prospects . . . deluxe brochures . . . new ad mats . . . direct mail pieces . . . a sensational new demonstration kit . . . *everything* you need to make Scotsman Ice Machine sales.

AND DON'T FORGET: As a Scotsman dealer, you're backed by a national organization devoted *entirely* to ice machine sales and service. Ice machines are the mainline—not a sideline!

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ICE MACHINES

YES! Send me complete information about a franchise for Scotsman Ice Machines.

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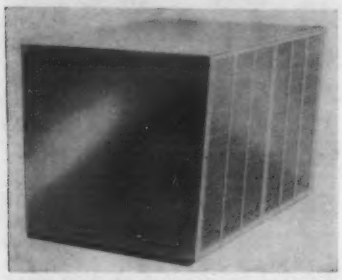
CITY_____ ZONE____ STATE_____

MAIL TO: **SCOTSMAN ICE MACHINES**
Queen Products Division, King-Seeley Corporation
204 Front Street, Albert Lea, Minnesota
EXPORT OFFICE: 15 William St., New York, N.Y.

Condensing Unit Delivers 8 Btu Per Watt



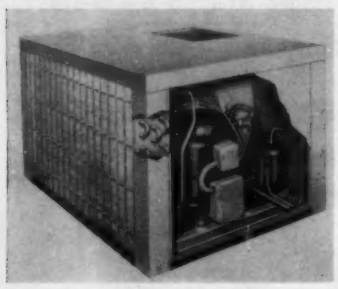
● New 2 and 3-hp. air-cooled condensing units for remote air conditioning application has been announced by Lennox Industries, Inc., Dept. AH&RN, 200 S. 12th Ave., Marshalltown, Iowa.

These units will deliver at least 8 B.t.u. of cooling per watt of power input to the condensing unit under ARI Standard 210-58, says Lennox. They can be used with a wide variety of Lennox evaporator coils for up, down, or horizontal air flow. Depending upon evaporator coil selected, the 2-hp. unit will deliver from 22,000 to 25,000 B.t.u.h. cooling; the 3-hp. unit will deliver from 33,000 to 40,000 B.t.u.h. cooling.

Weather-resistant cabinet is of zinc-coated steel, finished with baked-on, thermo-setting acrylic enamel. Slanted discharge side is designed to help keep out rain. Base panel is coated inside and out with a special preservative. The interior is acoustically treated.

The Lennox-designed coil has a new refrigerant circuiting method said to increase refrigerant subcooling, thereby producing more cooling per watt. Air mover is an axial flow fan. Compressor is suction-cooled, resiliently mounted, overload protected, and has a crankcase heater to prevent liquid slugging caused by cold start-ups.

Mueller Remote Uses Centrifugal Blower



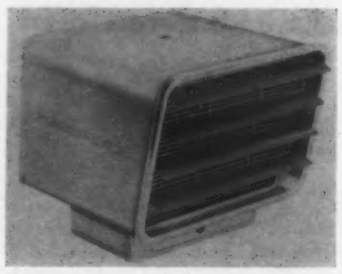
● A new line of remote air-cooled condensing units (Type 938) in 3, 4, and 5-ton nominal sizes for installation with coil and cabinet or air handling units is being offered by Mueller Climatrol, division of Worthington Corp., Dept. AH&RN, 2005 West Oklahoma Ave., Milwaukee 1.

"New design features include large, extra capacity centrifugal blower to insure quiet and dependable operation under any climatic condition," the announcement indicated.

"All controls, other than thermostat, are located inside the condensing unit and all parts are easily accessible for installation and service.

"Units are weather-proofed against the elements for outdoor installation in any climate. Raised base and undercoating prevent rust and insure long life. Controls, receivers, and many other parts of the 938 series are standardized to minimize stock problems. All units are shipped assembled, precharged with refrigerant, and prewired."

All units are rated in accordance with ARI Standard 210-58, it was noted.



Heater's Components Removable As Unit

● What is said to be a new concept in electric unit heater design and construction has been announced by the Berko Electric Mfg. Corp., Dept. AH&RN, 212-40 Jamaica Ave., Queens Village 28, N. Y.

The heaters "feature a clean, modern appearance for use in offices, reception rooms, and stores where design and decor are important factors," the company said. They are constructed for continuous, heavy-duty use, featuring ⅝-in. stainless-steel sheath-type heating elements, and a factory prewired, built-in 30-amp contactor (relay).

One feature is the chassis type construction which permits the entire internal components to be removed as a single unit without disturbing the heater mounting or external wiring, it was pointed out.

The unit heaters are available in 5 kw. and 7.5 kw. capacities, 208, 240, and 480 volts. They may be wired for either single or three-phase operation through use of unique buss bar connections.

More details on the products described on these pages may be obtained by writing the manufacturer at the address given in each story.

Bohn Bows Six Compact Air Conditioners

● Compactness in year-round air conditioning units is said to be featured in the six-model line of low-cost Bohn CH units recently introduced by the Danville Div. of Bohn Aluminum & Brass Corp., Dept. AH&RN, Danville, Ill.

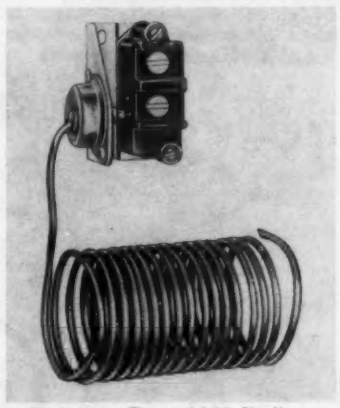
The models come in 2, 3, 4, 5, 7½, and 10-ton capacities. Units can be set up for either cooling or heating and then easily converted to year-round air conditioning at a later date, it was noted.

"All models take up to eight rows of cooling coil plus two rows of heating coil," the manufacturer said. "Cabinet and discharge plenum are styled with clean, trim lines. Unit can also be remotely mounted and connected to a duct system if desired.

"Heavy gauge bonderized steel cabinets are finished in durable gray hammertone enamel and insulated with ½-in. thick coated glass fiber insulation. Sectional panels provide convenient access to permanent 1-in. filters, expansion valve (not furnished), motor, and drive. Motors are standard, open 1,725 r.p.m., drip-proof type with resilient base, adjustable mounting and variable pitch pulley."

Discharge plenum with double deflection grille and fixed inlet grille are both offered as optional accessories.

Limit Control for Baseboard Heating



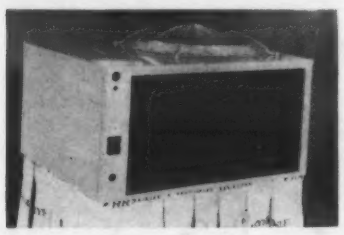
● A new Type 4A01 limit control, designed to shut off the baseboard heating system if an unsafe temperature condition exists due to the air passage being blocked at any point, and designed for use with both high and low wattage baseboard heaters, has been announced by White-Rodgers Co., Dept. AH&RN, 1209 Cass Ave., St. Louis 6.

Using a complete hydraulic fill, the sensing bulb provides high temperature protection anywhere along the entire baseboard.

"When the bulb of the 4A01 limit reaches 210° F. its contacts open, breaking the circuit and shutting off the heater," the company explained. "The heater will remain 'off' until the temperature inside the baseboard drops to normal, at which time the heater will come 'on.' The 'on-off' cycling of the heater by the limit control will persist until the blockage is removed, making it unnecessary to press any reset buttons."

Electrical rating: 22 amps. at 120v. or 240v., 18 ams. at 277v. and is available with "sensing bulb" lengths of 2, 3, 4, 5, 6, 8, and 10 ft.

DISTRIBUTOR DAN AND
THE CASE OF THE H-6 LEAK DETECTOR
RANDOM FLASHING
WHOA-A-A...HOW COME THE PROBE LIGHT FLASHED BACK HERE? I'M NOWHERE NEAR THE LEAK.
AIR CONDITIONING & REFRIGERATION SERVICE
THAT'S CALLED "RANDOM FLASHING". IT CAN BE CAUSED BY A NUMBER OF CONDITIONS.
"A SHARP RAP, OR RESTING THE CASE ON A VIBRATING SURFACE, MAY AFFECT THE H-6's SENSITIVE ELECTRONIC CIRCUIT."
RANDOM FLASHING MAY ALSO BE CAUSED BY QUICK CHANGES IN LINE VOLTAGE, SUCH AS A MOTOR OR ELEVATOR STARTING...
...OR EVEN SEVERE STATIC IN POWER LINE SUCH AS CAUSED BY A DEFECTIVE NEON SIGN...
SAM'S SERVICE
...AND FINALLY, AIR CURRENTS SOMETIMES CONTAIN UNSUSPECTED REFRIGERANT VAPORS.
BUT DON'T WORRY ABOUT RANDOM FLASHING...THE ONLY IMPORTANT FLASH IS THE ONE THAT REPEATS EVERY TIME THE PROBE TOUCHES THE SAME SPOT.
Watch for more tips from Distributor Dan and...
FOR MORE COMPLETE INFORMATION ON THE TYPE H-6 LEAK DETECTOR, CONTACT YOUR NEAREST AIR CONDITIONING AND REFRIGERATION WHOLESALER: OR SEND THIS COUPON TODAY FOR BULLETIN GEA-6827, TO GENERAL ELECTRIC COMPANY SECTION 595-412 SCHENECTADY 5, N.Y.
U.S. MAIL
NAME
ADDRESS
COMPANY
STATE
INSTRUMENT DEPARTMENT
GENERAL ELECTRIC



Airtemp Unit Uses Aluminum Compressor

● A 3-hp. condensing unit, model 1204-00, featuring a new die cast aluminum compressor and larger coils, has been introduced by Airtemp Div., Chrysler Corp., Dept. AH&RN, Dayton 1.

The compressor and an enlarged condensing area give the 1204-00 a full 35,000 B.t.u. capacity as certified by Air-Conditioning & Refrigeration Institute standards, it was stated. Also emphasized was quietness of the unit. The compressor floats on rubber mounts and flexible connections absorb twist and strain to lengthen the life of the copper connections.

A corrosion resistant epoxy primer, top coated with gray baking enamel protects the steel-bonderized cabinet. The cabinet measures 32⅝ by 39½ in. and can be installed in an 8.9-sq. ft. space.

"A redesigned venturi top assures an increased, proportioned air flow and the condensing unit is equipped with a receiver for refrigerant to provide wide application possibilities despite load differences in various installations," Airtemp said.

Built-In Channels Carry Heating Fluids

● A new tubular product, with built-in channels to simplify and reduce the cost of recirculating heating-fluids required in piping systems has been announced by Aluminum Co. of America, Dept. AH&RN, 1501 Alcoa Bldg., Pittsburgh 19.

"The one-piece, extruded 'Duotrace' section contains two integral channels flanking a large, product-carrying pipe area," it was pointed out. "The heating medium travels through one small oval passageway, maintaining temperature of bulk material in the product line to insure a free flow. At a terminal, the fluid is reheated, if necessary, prior to being returned through the second channel.

"The new Alcoa product was designed specifically to eliminate extra piping, now used to return such media as hot water, oil, and commercial preparations to a source for recirculation.

"Duotrace is available in 2, 3, and 4-in. pipe sizes."

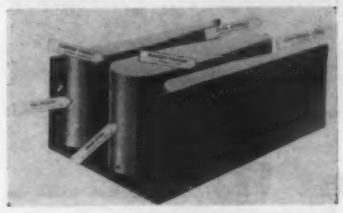
Automatic Shutters

● Fully automatic all-aluminum wall and ceiling shutters for industrial and residential use have been introduced by Whirlwind Mfg. Co., Dept. AH&RN, 3520 Clinton Dr., Houston, Texas.

Silencer Redesigned for More Efficiency

● The complete line of Industrial Acoustics "package" "Quiet-Duct Silencers" has been redesigned for increased efficiency, according to the Air Conditioning Dept. of Industrial Acoustics Co., Inc., Dept. AH&RN, 341 Jackson Ave., New York City 54.

"This design features a 'bell-mouth' entrance for minimum entrance loss and a solid nose entrance for maximum noise reflection," the company stated. "Other features which provide maximum noise reduction with lower pressure drop are a narrow throat passage for maximum impedance,



combined with a straight throat passage for minimum air friction.

"The unique diverging design of the evase exhaust keeps turbulence at a minimum and allows for maximum pressure regain," the company claims.

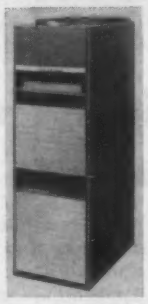
'Sure Klean' Solvent Controls Slime, Algae

● Three-fold protection is said to be provided for all refrigeration units by "Sure Klean" algae and slime control, a new product of The Process Solvent Co., Inc., Dept. AHRN, 1040 Chelsea Trwy., Kansas City, Kan.

The company claims that Sure Klean "controls algae and slime while (1) lubricating water pump bearings and seals; (2) causing no rust . . . because it contains no chlorine; (3) adding years to the life of the tubing.

Compact Gas Furnace for Builder's Market

● Four sizes of gas-fired, upflow furnaces in a new compact design for the builder's market are being offered by the Unitary Equipment Div. of Carrier Corp., Dept. AH&RN, Syracuse 1, N. Y.



The new furnaces are 51 in. high, 26 in. deep, and vary in width from 14 to about 20 in. They can easily be used in a year-round air conditioning system by coupling them with a self-contained cooling and dehumidifying unit, in the Carrier Thermo-Center installation, it was stated.

"The quiet, direct-drive blowers are adjustable to three speeds by a simple wiring change on the tap-wound motor to vary air quantity to the needs of the house," the company pointed out.

"Input capacities, according to AGA standards, are 70,000, 80,000, 100,000, and 120,000 B.t.u.h. Finished in two-tone blue baked enamel, the furnace is suitable for game or utility room location."

Oil Furnace Has Octagon Exchanger

● A newly designed and engineered oil-fired forced air furnace series has been introduced by Thermo Products, Inc., Dept. AH&RN, North Judson, Ind.

According to the firm, the new furnaces feature "Octotherm," octagon shaped heat exchanger "with the company's guarantee for life."

Designated as "Thermo Pride," the first models being marketed have 90,000 and 125,000 B.t.u. capacities. The new units also have factory installed wiring and refractory combustion chamber.

"This permanent ScottFoam filter is easily secured with clips against the front panel grill," reports Mr. Moffitt. "And it can be just as easily removed, washed and replaced by the housewife."

SCOTTFOAM* FILTERS SPELL CONVENIENCE TO OUR CUSTOMERS

says J. P. Moffitt, Department Manager—Room Air Conditioners, Westinghouse Electric Corporation

"We try to build permanence into our products," states Mr. Moffitt. "That's why we use ScottFoam filters for all 37 models of our Mobilaire® Conditioners.

"These filters really take rough handling. We make our units so the filters can be easily removed, washed, rung out like a towel and replaced. And there's never any shrinkage. Another advantage is ScottFoam's germicidal action, which stops growth of bacteria trapped in the filter.

"From a manufacturer's standpoint, we like ScottFoam filters because they're indestructible in our assembly operations. And ScottFoam is completely safe to handle. No fears of workers getting skin irritations or harmful slivers in their eyes or hands from ScottFoam."

Write for your free booklet, SCOTTFOAM FILTER MEDIA

See how permanent ScottFoam filters can be adapted to your products — and give you added sales features.

A-1

Manager, Industrial Sales, Foam Division
Scott Paper Company, Chester, Pennsylvania

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TECH CENTER

by Frank J. Versagi, Technical Editor

Applied Electrical Theory (Part 17)

Inductance-Capacitance-Reactance

In article 7 of this series, it was stated that the discussion of Ohm's law and other such factors up to that point were valid for both direct current circuits and for **alternating current circuits with resistance-type devices only in the line.** The more perceptive reader may have noticed that the specific term **resistance** was applied to such things as incandescent lamps and heating elements but a coined term, like **ohm-value,** was used to refer to the opposition to current flow offered by a motor or other induction device.

An ohmmeter applied to the leads of a small shaded-pole motor may indicate that the pure resistance of the motor windings and leads is some 35 ohms. Using Ohm's law on an application across a 120-volt line:

$$I = \frac{E}{R} = \frac{120}{35} = 3.4 \text{ amps}$$

A small motor like this does not draw 3.4 amps. In fact, field measurement with a snap-around ammeter shows almost no deflection; clearly the current is under 1 amp.

The pure resistance of a solenoid coil was found to be 4 ohms. At 120 volts, this would operate at 30 amps theoretically. In actual operation, the coil draws 11.5 amps.

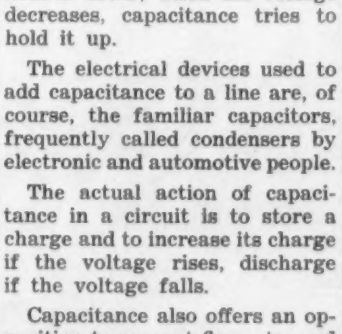
Obviously, something other than pure resistance must be opposing current flow in these instances. The increased opposition is due to **inductance.** Inductance was first encountered in article 12. In a later discussion of splitting the phase to enable a single-phase motor to start, it was shown that merely creating more inductance in one coil than in the other dropped current in the first far enough behind that in the second to get the shift of magnetic poles needed to obtain starting torque.

It is difficult at this point not to become too complex for the beginner and for those who need only an awareness, rather than a full understanding, of what follows. Even simplified explanations of alternating current circuits call for more mathematics than is advisable in a discussion at this level. Such a discussion may be given at another time in Tech Center.

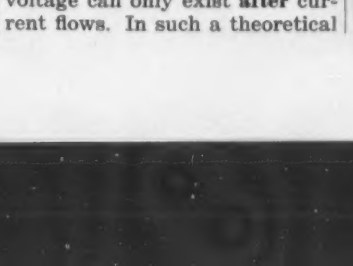
For now, it is accurate enough to say that in alternating current circuits, several factors combine to affect current flow in one way or another; in direct current circuits, only pure resistance is normally encountered.

Inductive reactance is that opposition to current flow offered by induction devices. Since inductance can only affect current flow while the current is changing (current changes generate an induced emf—see article 12) it does not occur in d.c. circuits except at the moments of closing and opening the circuit.

If an a.c. circuit has only pure resistance, the current rises and falls at the same time as the voltage, and the two wave forms are said to be **in phase** with each other:



Although it is only theoretically possible, if an a.c. circuit had only pure inductance, the opposed current **lags** behind the voltage a full quarter of a cycle, or 90°. In this instance, the voltage and current are said to be 90° out of phase.



The unit of measurement for inductance, symbol L, is the **henry.**

In a practical circuit containing both inductive reactance and resistance, the current wave will lag the voltage by an amount between 0° and 90°. Equal resistance and inductive reactance would produce a 45° **phase angle.**

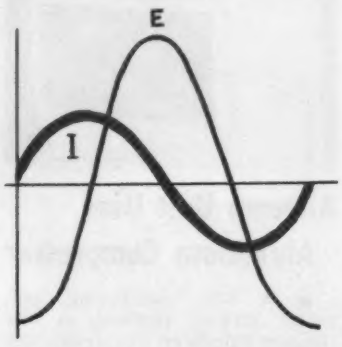
Just as inductive reactance opposes any change in **current in an a.c. circuit, CAPACITANCE opposes any change in VOLTAGE.** (Again, this phenomenon only affects d.c. circuits at the moments the current is turned on and off.) When the voltage increases, capacitance tries to hold it down; when the voltage decreases, capacitance tries to hold it up.

The electrical devices used to add capacitance to a line are, of course, the familiar capacitors, frequently called condensers by electronic and automotive people.

The actual action of capacitance in a circuit is to store a charge and to increase its charge if the voltage rises, discharge if the voltage falls.

Capacitance also offers an opposition to current flow—termed **capacitive reactance** — but the capacitive reactance (opposition to current flow) **decreases** as the capacitance (opposition to voltage change) **increases.**

As a result, in a theoretical circuit containing only pure capacitance, and no resistance, voltage can only exist **after** current flows. In such a theoretical circuit, the current wave **leads** the voltage wave by 90°.



The unit of measurement for capacitance, symbol C, is the **farad,** more practically the **microfarad**—one-millionth of a farad.

In a practical circuit containing both resistance and capacitance, the phase angle is between 0° and 90°, and the current always leads the voltage.

This is exactly opposite of what occurs in an inductive circuit where the current lags the voltage.

The fact that inductance and capacitance have opposing effects in a circuit is the explanation for the use of capacitors with a motor or on a power line to improve power factor, an item which will be discussed in the next article.

* * *

In an alternating current circuit, then, the total opposition to current flow offered by resistance, inductive reactance, and capacitive reactance is termed **impedence,** symbol **Z,** and is expressed in ohms. The term **total opposition** here **is not** synonymous to an arithmetic sum of the several factors; we are ignoring the mathematics involved in converting henries and farads to ohms and the calculation of the total effect of varying inductances and capacitances.

Z, after it is determined, can be substituted for R in the normal Ohm's law statement:

$$I = \frac{E}{R} \text{ or } I = \frac{E}{Z}$$

file guide—ELECTRICITY: Theory

Next: POWER FACTOR

A short series on metering devices—capillary tubes, expansion valves—will follow completion of the articles on Applied Electrical Theory.

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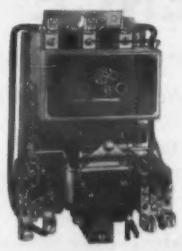

GENERAL PURPOSE CONTROLS

Furnas Magnetic Starters, ruggedly designed to provide complete satisfaction, are available through size 6. Dual voltage coils, "Trip-Free" thermal overload relays and Furnas in-between sizes 1¾ and 2½, plus features such as moisture proof coils and silver-cadmium oxide contacts assure long trouble-free operation.

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HUTCHINSON, KANSAS

Men on the Move . . .

Wolverine Tube, Div. of Calumet & Hecla, Inc.—JOSEPH A. FINNERTY has been appointed wholesaler sales representative in the Detroit area. ROBERT D. SEBRING has been named sales representative for the western Pennsylvania area. GORDON R. JOBE was appointed sales representative in the Dallas district and will cover Oklahoma, the Texas Panhandle, and western Arkansas. RALPH J. BROWN was named manager of employe and public relations.

Whirlpool Corp.—T. THOMAS STROOP has been promoted to the newly-created position of sales manager for gas refrigerators. He was formerly sales supervisor, refrigeration division.

Fedders Corp.—CONSTANTINE KEEN has been appointed credit manager. Formerly assistant credit manager, he succeeds THOMAS PECK, who was recently named general manager of the Fedders Financial Corp.

York Div., Borg-Warner Corp.—RALPH G. MEISENHELDER has been named director of industrial relations. He replaces J. M. L. JOSLIN, who has been appointed manager of executive development and training for Borg-Warner.

Powers Regulator Co.—FRANK P. FARRIS has been named air conditioning and refrigeration engineer for the San Francisco office. He is a graduate of the air conditioning and refrigeration department of California State Polytechnic college, San Luis Obispo.

Delavan Mfg. Co.—J. DAVID HOPKINS was elected vice president in charge of sales. He has been general sales manager.

Master-Bilt Refrigeration Mfg. Co.—H. D. WARNING, formerly sales manager, was named sales vice president.

Minneapolis-Honeywell Regulator Co.—JOHN R. HORAN has been appointed New York branch residential sales manager. He was a senior sales engineer.

American - Standard Industrial Div.—SHELDON D. JOHNSON, JR. was appointed manager of quality control at the Columbus plant and DONALD B. SELBE to the same post at the Buffalo-Walden plant. Johnson was formerly with the Appliance Div. of Westinghouse Electric Corp. Selbe has been with Tube Manifold Corp. GORDON PARRINGTON was appointed plant superintendent at the Dearborn plant. He has been general foreman.

The Vilter Mfg. Co.—HERMAN C. MELMS has been named manager of the order department. Previously assistant manager of the department, he fills the vacancy created by the recent death of E. F. Fredrichsdorf. JACK DEROCHE has been appointed a sales representative. Deroche, who served two years as engineering officer aboard a radar picket ship, will cover the Milwaukee and Madison, Wis. areas.

Flexible Tubing Corp.—ROGER F. VAUGHN has been advanced to regional sales engineer. He will work out of the Hillside, Ill. office, covering 10 north-central states for the General Products Div. Previously Vaughn was a sales engineer at Hillside.

Airtemp Div., Chrysler Corp.—HARRY P. YOUNG has been promoted to manager of sales planning, residential products. He was a field district manager. JOSEPH B. MULE has been advanced to supervising district manager in the North Atlantic district, Applied Machinery & Systems Dept. He was district manager in Leonia, N. J.

GEORGE A. GODFREY has been appointed district manager of the Chicago area, transferring from the engineering laboratory. HENLEY M. HILBURN was named business and market research manager. He has been manager of sales planning, residential products. ROBERT W. FORSTER has been appointed manager of sales planning, room air conditioners. He has been manager of business and market research.

HASCAL "CAL" SIMMONS has been named branch manager at Atlanta and DONALD C. DEGEN sales engineer there. Simmons has been branch operations specialist. Degen was a sales representative at the Chrysler International Salon in New York City. DEL ROBSON was named district manager for the Kansas City area. He was formerly a district manager with Chrysler in the Kansas City and St. Louis districts and has worked with another air conditioning firm for the past three years.

Peerless Pump, Hydrodynamics Div., Food Machinery & Chemical Corp.—JOHN D. (JACK) NOMMENSEN was appointed process pump product sales manager. He has been branch manager of the Detroit office.

Heating & Air Conditioning Div., Stewart-Warner Corp.—WARREN H. MELGAARD and HARRY Y. RADINE have been named district sales managers. Melgaard, who established his own heating business in St. Charles, Ill. in 1950, will supervise dealer sales activities in Wisconsin and northern Illinois. Radine, a veteran of 10 years with the Detroit Safety Engineering Bureau, will handle Greater Detroit and four surrounding counties.

Mueller Brass Co.—ROBERT M. WHEELER has been appointed sales representative and assigned to the Philadelphia office. He has been connected with the sales department at the main plant.

Bell & Gossett Co.—ARTHUR T. WOERTHWEIN, comptroller and secretary, has been named vice president, finance.

Perfection Div., Hupp Corp.—ROBERT T. WATT and JAMES C. CARLTON have been named district sales managers for space heater and appliance products. Watt will cover Florida, Georgia, and Alabama. Carlton will cover Michigan, Ohio, and western Pennsylvania.

W. H. WESTENHOEFER, JAMES C. HACKLEY, and ALVIN J. SCHNUR were named district sales managers for air conditioning, heat pump, and furnace products. Districts covered by the new managers are Pennsylvania-New Jersey, Texas-Oklahoma-Louisiana, and Missouri-Kansas-Iowa-Nebraska, respectively.

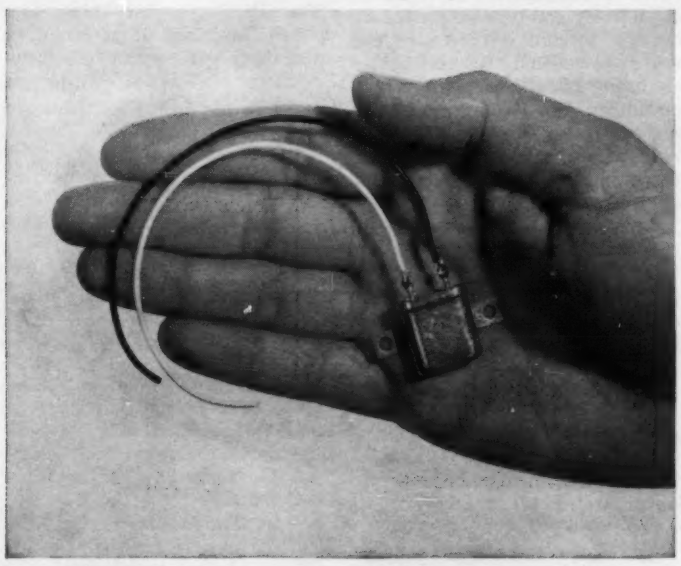
General Electric Co.—DANIEL R. ANTRIM has been appointed sales engineer for the Appliance Motor Dept. He was a sales engineer for the Hermetic Motor Dept. DONALD L. WEYENETH was named sales engineer-refrigeration controls, marketing section, Appliance Control Dept. He has been with the Jet Engine Dept. MARTIN J. LEWIS, formerly field sales representative for G-E central air conditioners in the south-central Texas area, has been appointed manager of central air conditioning sales, New Orleans district.

Water Service Laboratories, Inc. (New York City)—WILLIAM F. DEVENNEY has joined the engineering staff of the Philadelphia office. He was formerly with du Pont and Betz Laboratories, Inc.

Metals & Controls Div., Texas Instruments, Inc.—Named field engineers for the Spencer Products group were SAMUEL T. BRYANT for the Dayton-Cincinnati area, ROBERT S. BYERS for the Chicago area, and ROBERT L. PAUL for the southern California area.

The Trane Co.—ROBERT R. TROCHUCK has joined the Chicago sales office as a sales engineer. GENE J. LEMANSKI has joined the Aurora, Ill. sales office as a sales engineer. HOWELL E. ADAMS, JR. has joined the Atlanta sales office as a sales specialist in packaged air conditioning and heating products. WILLIAM F. FOSTER has been assigned to the Phoenix sales office as a sales specialist in residential and self-contained equipment.

New electronic "watchman" detects freezer breakdowns...



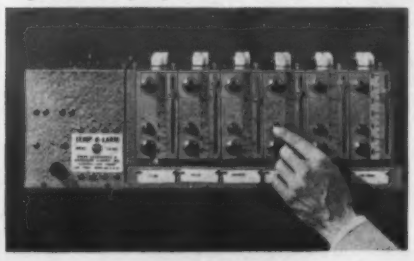
Opens up a golden sales opportunity for you!

Now – thanks to Kidde's new Temp-O-Larm, every supermarket, dairy, freezer plant is a gold-mine of potential profit! Frozen food spoilage due to freezer failures runs into millions of dollars annually, is a constant concern to store managers and owners. They will listen to your story on sure, dependable protection against spoilage that costs them only a modest amount per freezer unit – and *you* will net an attractive profit for every one of these installations!

Developed by Kidde Ultrasonic & Detection Alarms, Inc., the Temp-O-Larm system takes up little space, is easily installed, requires little or no maintenance. A tiny detector, pre-set for a specific temperature, is placed in each freezer or locker. Any abnormal temperature rise triggers the system, sounds an alarm locally or at central alarm company, points out the trouble spot immediately. Alarm time delay (0-6 hours) prevents false alarms during *normal* defrost or loading periods.

Temp-O-Larm is being promoted by national trade advertising and publicity, and special dealer sales aids are available. Most important of all, Temp-O-Larm bears the name of Kidde – most respected name in the alarm business.

For more information on Temp-O-Larm, and how it can bring in profits for you, write to Kidde Ultrasonic & Detection Alarms, Inc.



Annunciator in store signals dangerous temperatures immediately. Unit shown guards six refrigerated boxes. Lights indicate normal and alarm conditions. Unit has alarm time delay controls, alarm reset buttons.

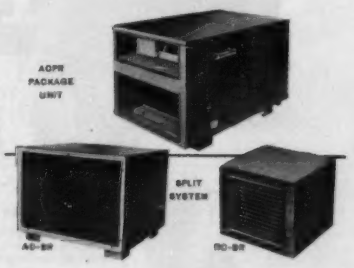
Kidde

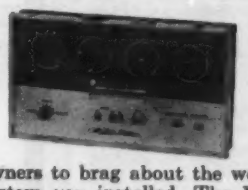
KIDDE ULTRASONIC & DETECTION ALARMS, INC.
495 Brighton Road, Clifton, N. J.
A Subsidiary of Walter Kidde & Company, Inc., Belleville 9, N. J.

NEW PRODUCTS

These brand-new units open new markets, protect old markets for you!

Heat Pumps—Package and Split-System Models—They heat and cool for year-round comfort!—Both models are factory-assembled and pre-wired, ready to install. The ACPR goes in an attic, basement, crawl-space, transom or central hallway. The Split System consists of the AC-BR Unit (installed outside the house) and the RC-BR Inside Unit (mounted in the duct system), with its self-contained, high-capacity blower. American-Standard Heat Pumps are available in 2, 3, 4 and 5 h.p. A single automatic thermostat provides the desired temperature in both summer and winter, by means of an automatic gas-reversing valve. The units have a De-icing System, which prevents ice build-up, and a Double Drain Pan, which saves you work and money on installation. A Supplementary Electric Heater is available in four capacities—13,648, 27,296, 40,944 and 54,592 Btu—with step-by-step cut-in control of the elements to prevent overloading the power line.





Weather Station—Top-quality comfort control your customers can see!—The American-Standard Weather Station is a profit item that sells on sight! It puts controls and weather instruments all in one visually dramatic package. It prompts home owners to brag about the wonderful heating and air conditioning system *you* installed. The Weather Station is simple to install. Push buttons set the system for heating, cooling or air circulation and filtration only. A clock-thermostat maintains temperature control, with automatic night set-back. There's a warning light that signals when filter needs changing.

Electric Furnaces (Upflow & Downflow)—New-fashioned heating plus traditional quality!—These furnaces come completely assembled, ready to connect to a power supply. They are factory-wired for 82,000 Btu; simple reconnections can reduce capacity by steps down to 41,000 Btu. Each unit comes in two models; one for use with a 2- or 3-ton "add-on" cooling unit, and one for use with a 5-ton "add-on" cooling unit. Both models are compact enough for installation in closet, alcove, hallway or basement . . . with no flue required. And the control panel swings out for easy servicing.

GET THE NEW DATA SHEETS AND PRICE LISTS TODAY—your American-Standard Air Conditioning Division Distributor has them.

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AIR CONDITIONING DIVISION
ELYRIA, OHIO

Applying Thermostatic Expansion Valves To Systems Requiring Capacity Control (1)

Operating a refrigerating or air conditioning unit at reduced capacity usually presents problems. The problems vary from refrigerant flow, through oil return, to air supply. This two-part article discusses the application of the thermostatic expansion valve to various systems requiring capacity control.

By E. F. Kounovsky, Sporlan Valve Co., St. Louis

Because many refrigeration and air conditioning systems are required to operate at less than design loads part of the time, some means of controlling system capacity is frequently a necessity. On-off cycling of the compressor is the most commonly used method for controlling the capacity of small systems. While this may be adequate for many refrigeration applications, for others, it has serious shortcomings.

On air conditioning equipment, for example, humidity control is apt to be rather poor with compressor cycling due to the re-evaporation of condensate when the compressor is idle. Control of humidity is improved when multiple compressors are used and cycled in steps.

It is frequently more satisfactory for the compressor to run continuously, varying the system capacity to suit the load by one of the following methods:

1. **Control of compressor speed** by the use of multi-speed motors, variable speed drives, hydraulic or magnetic drive couplings. For engine driven compressors, speed control is a simple and effective way to control capacity.

2. **Discharge gas by-pass** into the suction line, although desuperheating of the suction vapor is required to avoid excessive discharge temperatures and excessive temperature of the motor windings on hermetic compressors. This control method tends to be uneconomical with regard to power consumption.

3. **Throttling the suction line,** usually with a back-pressure regulator, is simple but is also uneconomical. This method is extensively used on multiple evaporator systems; on single evaporator systems, operation at undesirably low suction pressures may occur.

4. **Cylinder unloading of** multiple cylinder compressors by cutting out cylinders successively as the refrigeration load is reduced. This may be done by automatically opening clearance pockets in the cylinders or by holding open suction valves. In either case, the cylinders so controlled become ineffective. This method is fairly common for compressors above 25 hp., and is also used down to 7½ hp. Depending on the compressor design, capacity may be reduced to as little as 12 to 15% of full capacity.

By any of the above control methods the compressor capacity can be reduced to match a reduced evaporator load and still maintain a desired evaporator temperature.

The desirability of maintaining evaporator temperatures is fairly obvious; dehydration of refrigerated foods is accelerated if the temperature difference between product and refrigerant is too great. Water chillers used in air conditioning systems are vulnerable to freezing and damage to the evaporator. The frosting and subsequent blocking of air conditioning coils at low loads can occur, causing an uncontrolled system to cease operating. Humidity will rise while the compressor is off the line, since the fans will return moisture into the conditioned space as the ice melts off the frozen coils.

Unfortunately, the capacity of a thermostatic expansion valve cannot be altered with the same ease as the compressor; it becomes over-sized when the capacity of the compressor is reduced. Within reasonable limits, however, a direct acting thermostatic expansion valve can adjust to a lower load and still produce good control of refrigerant flow.

Good system design and installation practices are essential to satisfactory control at reduced loads. Perfectly smooth valve control is not a necessity at reduced loads since full evaporator capacity is not required; the primary concern is to avoid continuous or intermittent flood-back to the compressor.

It is sometimes difficult to predict thermostatic expansion valve performance at reduced capacities; compressor cylinders cutting in and out require the valve to adjust to constantly changing conditions; evaporator circuiting and loading, refrigerant velocities, and type of thermostatic charge are some of the factors which influence valve operation.

On some systems, operation as low as 15 to 25% of full capacity can be satisfactory while operation at 50 to 75% of full capacity may be difficult to achieve on others, the difference being due in large part to system design.

By observing the recommendations listed below, satisfactory thermostatic expansion valve operation can be expected down to at least 35% of its rated capacity.

1. **Valve Size**—The thermostatic expansion valve should be sized as closely as possible to the full load condition. When most of the operation is to be at reduced loads and when higher superheats are permissible at full load, a valve with a capacity rating of 10 to 15% below the full load may be selected, utilizing part of the available reserve capacity of the valve.

2. **Distributor Size**—If a refrigerant distributor is used, the nozzle should be selected at the maximum limit of allowable loading. Thus, the oversizing at reduced loads will be minimized.

3. **Superheat adjustment** — The setting of the thermostatic expansion valve should be made at the highest possible superheat which can be tolerated at full load.

4. **Counterflow** — When the evaporator is circuited for counterflow of the refrigerant, superheat will have the least effect on evaporator capacity and suction pressure fluctuations will be minimized.

5. **Suction line piping** — Approved methods of suction piping, including the correct installation of traps and favorable bulb location, promote good valve control at both full and partial loads.

6. **Heat exchanger**—An adequate liquid-to-suction heat exchanger assists by vaporizing small quantities of liquid before they reach the compressor.

(To Be Continued)

Kenmore Opens Canadian Subsidiary

LYONS, N. Y.—Kenmore Machine Products, Inc. here has opened the plant of a Canadian subsidiary — Kenmore Machine Products (Canada) Ltd., in Grimsby, Ont., it was announced by James A. Smith, president.

The new, modern one-story plant with 8,000 sq. ft. of floor space is located in the rolling Niagara Ontario fruit belt, east of Hamilton just off the Queen Elizabeth Way.

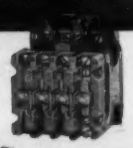
Here Kenmore is manufacturing the complete line of KMP products: driers (both molecular sieve and silica gel), accumulators, accumulator driers, strainers, and capillary assemblies for the original equipment manufacturers and wholesalers in Canada.

General manager of the plant is J. Preston Hansel, former assistant plant manager at the company's main plant in Lyons.

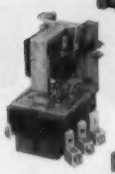
Vice President C. R. Straubing said "This is another forward step in the continuing growth of K.M.P. The new plant will enable us to better serve our Canadian customers. We are backing up our entry as a Canadian manufacturer with extensive advertising."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

THIS
COMPLETE CONTROL FAMILY
is especially engineered for the air conditioning industry (including heat pumps)
by RBM



TYPE C-30, C-40, C-50 CONTACTORS
2-3-4 pole 30 amp.—600 volts.
2-3-4 pole 40 amp.—230 volts.
2 pole 50 amp.—230 volts.
Same mounting holes and coils for all ratings and pole forms.
Write for Bulletin 1070.



TYPE S-30, S-40 CONTACTORS
Rated 30 or 40 amps. Low cost, small size. Exceeds rigid requirements of industry's largest users.
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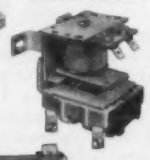
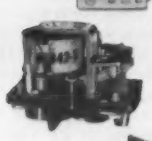
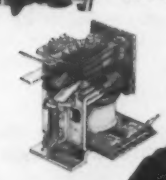


TYPE 80 CONTROLLER
Specific design for nominal 3 HP or 3-ton single phase compressors.
Write for Bulletin C-11.

TYPE 75 POWER RELAY
Low cost, dependable. Handles up to 6000 W. at 240 V., resistive load per pole. Compressor rating 2 poles, 18 amp. running, 90 amp. locked rotor at 250 volts.
Write for Bulletin 1030.



SERIES 129000 SHUNT TYPE RELAY — SPNO, SPNC OR NO-NC
For standard commercial voltages. Other coils available for special application. For heater, fan control, general circuit switching, etc.
Write for Bulletin 1010-A.



GENERAL PURPOSE RELAY
98000 Series AC or DC. Permits engineering short cuts lowering "finished product" cost.
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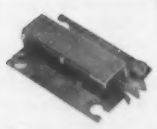
SERIES 128000 POTENTIAL STARTING RELAYS
For starting single phase capacitor start compressors.
Write for Bulletin 1010-A.



BIMETAL TIME DELAY RELAYS AND THERMOSTATIC DEVICES
To 230 volts. NO-NC. Heater common to contacts. Quick connect terminals. Write for Bulletin C-15.

For the most efficient and low cost solution of your control problems, consult your local RBM Product Application Engineer.

RBM CONTROLS DIVISION
ESSEX WIRE CORPORATION
Logansport, Indiana
FACTORIES: North Manchester and Logansport, Ind.

OUR BARGAINS JUST CAN'T BE TOUCHED

That's because they're so very *hot.* Every month Harry Alter's buyers fill our famous Flyer with all kinds of special closeout bargains carefully picked from manufacturer's surplus. You can save 50% or more, from the regular wholesale price.

We're Real Specialists in
REFRIGERATION • AIR CONDITIONING • ELECTRIC MOTORS
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SAVE MONEY, time and effort by ordering from our new *Dependabook,* the most complete catalog of all. 232 pages. Over 10,000 items carried in stock. *Wholesale only.* Your orders filled really fast by mail, or they can be picked up at one of our six big warehouses.

Write on your letterhead for the 1959 DEPENDABOOK...
Also our monthly Flyer of surplus and close-out Bargains.

THE HARRY ALTER CO., INC.

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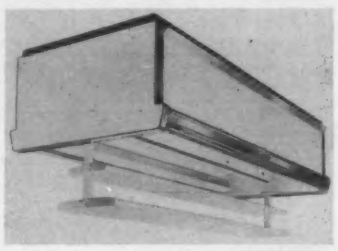
FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

McCray Bows 'Dual-Isle' Case

KENDALLVILLE, Ind. — A new "Dual-Isle" low temperature merchandiser for the display of frozen foods and ice cream in island locations has been announced by McCray Refrigerator Co., Inc. here.

"A common return air flue down the center of the case divides the display area into two separate compartments," it was pointed out. "This arrangement allows more facings and the opportunity for a greater variety of package display. Identical shopping fronts make product selection easier, eliminate aisle congestion, and reduce restocking time.



"The new Dual-Isle furnishes 72% more capacity than the regular island case in 30% more floor space. Two merchandisers in one unit reduces capital investment, and installation cost, and reduces operating expense.

"An optional, lighted superstructure with two shelves furnishes 38 sq. ft. of easily accessible related item display."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Federal Refrigerator Appoints Weeks & Co.

WAUKESHA, Wis. — Announcement has been made by Federal Refrigerator Mfg. Co. of the appointment of H. B. Weeks, Jr. and R. M. Russell, operating as Weeks & Co., Brookline, Mass., as manufacturers' representatives.

Both Harry Weeks and Bob Russell have had many years' experience in the commercial refrigeration field, according to A. T. Mickle, vice president of Federal. Their territory will include Massachusetts, New Hampshire, Vermont, Rhode Island, Connecticut, and the southern tip of Maine including the city of Portland.

Mickle also announced that Lloyd A. Winslow, Ellsworth, Me., has been appointed manufacturers' representative for Federal.

Winslow has had extensive experience in the commercial refrigeration field in the New England states. His territory for Federal will include the state of Maine with the exception of the southwestern tip and Portland.

NCRSA Survey Finds 1959 Business Brisk But Net Profit Down

PHILADELPHIA — The National Commercial Refrigerator Sales Association announced that members reporting on their sales for 1959, as well as the fourth quarter, enjoyed a substantial increase in business over comparable 1958 periods.

However, dollar net profit before taxes for last year declined 3.22% from 1958.

"This is the first time since 1953 that the growth in sales has not been followed by an increase in the net profit percentage as well," the NCRSA said. It added that on a cumulative basis, "dollar net profits had outstripped the sales increases by a considerable percentage until 1959."

Total dollar sales last year were up 23.45% from 1958. For the fourth quarter, they advanced 32.58% compared with the like period of 1958.

Inventories of participating members as of Dec. 31 increased 7.24% over the same date a year earlier and accounts receivable rose 11.81%.

Schwan Distributes C. V. Hill Equipment

SACRAMENTO, Calif. — Anthony A. Schwan of Schwan Refrigeration has been appointed distributor for C. V. Hill & Co., Inc. Arrangements were made by Edward A. Danforth of Beaverton, Ore., west coast representative for Hill.

In addition to commercial refrigeration, Schwan specializes in commercial and residential heat pumps.

The late Angus Purcell of Sacramento previously represented C. V. Hill & Co. in northern California territory. The distributorship awarded to Schwan includes both California and Nevada territory.

Warren Shows 'Wide Twin Isle'

ATLANTA — "Wide Twin Isle" is the name of a new "space and time-saving" frozen food merchandiser announced by the Warren Co. here.

"It is a 76½-in. wide, single unit, two compartment refrigerator which holds double rows of seven full-size frozen food packs," the company stated. "The 12-ft. Wide Twin Isle model holds 3,726 frozen food packs or 3,168 pints of ice cream—equal to two full-size low-temp cabinets.

The company said the merchandiser "offers dealers space for greater variety, savings from lower total investment in refrigeration equipment, and reduction in the dealers' operating and maintenance cost. Time and money are also saved in installation of one refrigerator instead of two, and less-frequent stocking."

Wide Twin Isle is a modification of Warren's original Twin Isle merchandiser, it was noted.

Dairy Industries Exposition Set For Chicago Oct. 31, 8 Assns. Meet

CHICAGO—The 22nd Dairy Industries Exposition will be held Oct. 31-Nov. 5, 1960, at the International Amphitheatre here under sponsorship of Dairy Industries Supply Association.

To date, eight other dairy industry organizations have announced plans to hold annual meetings during, or just before, the biennial staging of the latest advances in dairy industry supplies and equipment. They are:

International Association of Milk and Food Sanitarians, which will hold its 47th annual meeting Oct. 27-29 at the Hotel Morrison.

Dairy Society International, which will hold its 14th annual meeting Oct. 30 at the LaSalle hotel.

Dairy Suppliers' Foundation, which will meet Oct. 31-Nov. 1.

International Association of Ice Cream Manufacturers, which will hold its 56th annual convention Oct. 31-Nov. 2 at the Conrad Hilton hotel.

Evaporated Milk Association, which will meet Nov. 2 at the Knickerbocker hotel.

National Ice Cream Mix Association, which will hold its meeting Nov. 2 at the LaSalle hotel.

Milk Industry Foundation, which will hold its 53rd annual convention Nov. 2-4 at the Palmer House.

National Association of Retail Ice Cream Manufacturers, which will hold its 27th annual meeting Nov. 2-4 at the Conrad Hilton.

Close to 25,000 dairy industry men and women are expected to attend the exposition and conventions.

Freeborn Named VP of Brantford Hussmann

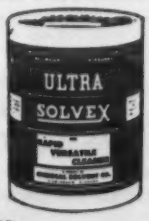
BRANTFORD, Ont., Can. — Election of Harold W. Freeborn to the new position of executive vice president has been announced by Austin C. Campbell, president and general manager of Hussmann Refrigerator Co., Ltd. here.

Freeborn was formerly vice president of Ruddy-Freeborn Co. which was purchased by Hussmann in December, 1948.

"OH...BUT ULTRA SOLVEX COSTS A BIT EXTRA, DOESN'T IT?"

NO! Not when you consider Solvex quality — and the poor results from cheaper compounds. Ultra Solvex may cost a little more per pound but is less expensive in the long run when other products usually lose their effectiveness.
STRONG: Ultra Solvex removes the most stubborn deposits.
SPEEDY: Ultra Solvex usually cleans without costly shut-down.
SAFE: Ultra Solvex disintegrates scale, does not harm operator or equipment. Insist on quality — insist on SOLVEX!

CHEMICAL SOLVENT CO.
BIRMINGHAM, ALABAMA



ASK YOUR WHOLESALER

Proper Meat Cooling is provided by space-saving Krack Semi-Circular Unit Coolers that maintain correct temperature and humidity balance to prevent shrinkage.
Safe Dry Product Storage is provided by ceiling mounted Krack BUC Product Coolers that maintain a constant temperature.
Frozen Food Walk-in Coolers are kept at —10°F. temperature by trouble-free Krack lo-temp, hot gas defrost units.
Low Cost Air Conditioning is provided by ceiling mounted Krack Komfort Master air handling units that are "whisper quiet."

You can count on KRACK to deliver FULL-RATED CAPACITIES!

ADVANTAGES IN SPECIFYING KRACK EQUIPMENT
You can be sure of ratings and equipment that match the job. You gain advantage of lower bidding...no need to specify oversize equipment. You save installation and maintenance costs.

KRACK REFRIGERATION APPLIANCES, INC.
Manufacturers of Freon or Ammonia, Recirculated, Flooded or Direct Expansion Heat Transfer Equipment

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Firm_____
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0240

Manufacturer's Basic Research Plays Important Role In Product Development

By Frank J. Versagi

ST. JOSEPH, Mich. — From bacteriology to gas air conditioning, from lint control to thermoelectric refrigeration.

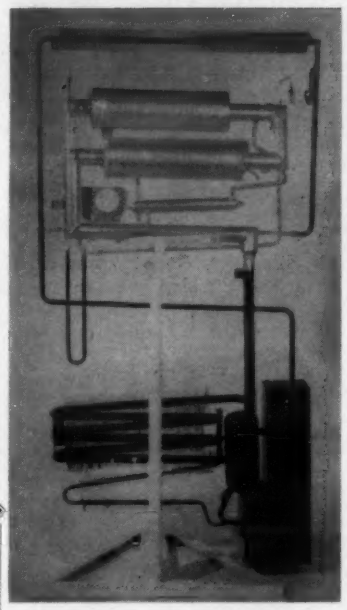
These are examples of the range of research being conducted here at Whirlpool Corp.'s Research Laboratories under the supervision of Gerhard Stoll, director.

Metallurgical, chemical, and physical testing laboratories add to the facilities which have led to such diverse results as impressive progress in thermoelectric refrigeration and the potential entry of Whirlpool into the manufacture of gas air conditioning equipment.

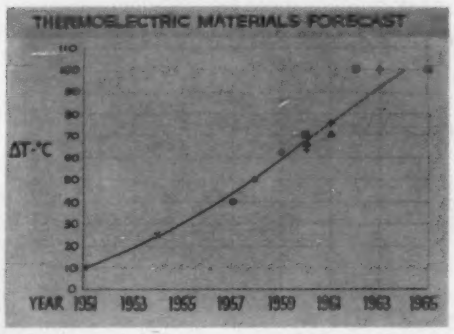
In the early part of this year, Whirlpool will market a new gas home refrigerator whose major features were developed here.

Behind these considerable accomplishments is an elert, aggressive research organization of 244 people, 116 of these with degrees in many scientific disciplines. The research group contains 18 Ph. D.'s and 18 Masters. Laboratory space, model shops, and administrative offices occupy some 130,000 sq. ft.

"The organization grows with our needs," says Director Stoll. "We use consultants or outside groups to investigate certain phases of a problem for us. But as soon as it becomes obvious that there will be a permanent need for that type of effort, we hire the necessary talent and set up needed facilities to do the work ourselves."



Smaller, lighter, more efficient than earlier models, this absorption refrigeration system is the result of research aimed at developing the "optimum refrigerator."



As shown by the increasing delta-T (ΔT °C), the temperature differential attainable between the hot and cold junctions of a thermoelectric couple, thermoelectric progress has been more rapid than many supposed.

As soon as work on any one project proceeds beyond the prototype stage, further development is conducted by the Advance Development Group of the division concerned.

The impressive list of practical accomplishments attributed to the research performed here is considered a testimonial to the effectiveness of basic research which seeks to gather knowledge that later proves of use in several fields.

"One technique used by the laboratory is to conceive an optimum product, say an optimum air conditioner. This is a product which does not exist," Stoll states, "but it is what the perfect air conditioner should be like. The optimum conception includes specific ideas on the properties of materials to be used, the function of all parts, freedom from service and maintenance."

Having conceived this optimum product, the research group then goes about reaching for one or the other of the properties of this ideal unit and in so doing develops major improvements for existing products.

The technique was used in the development of the new gas refrigerator, for example. The result has been a single-pressure absorption system much smaller, yet more efficient than previous systems.

Freezer temperatures have been reduced 10° in a 110° room; the same improvement has been accomplished in the food compartment. Weight of the absorption unit has been reduced for 175 lbs. to 90 lbs. The number of welds on the unit is reduced by 28%. Gas input to the refrigerator is down 17%. And, while the external dimensions of the refrigerator have been decreased, the internal volume has been increased from 10.8 to 13 cu. ft. on one model, from 11 to 13.4 cu. ft. on another.

"Servicing has been simplified, and the former strict leveling requirements have been eliminated, says Dr. Ben Philips, manager of the chemical Engineering Dept.

Each of the scientific disciplines represented in the research group contributes directly and indirectly to the improvement of existing products or to the development of new products.

Bacteriology, for example, supplies data of use to air conditioning designers, since it may develop information on the origin and control of odors off evaporator and condenser coils in service. The same science of course, is useful in such areas as laundry studies and food preservation.

Whirlpool's "lint room" is an interesting place. Here is a specially designed unit blowing lint all through a room containing standard products—refrigerators, say—whose condensers have been fabricated or coated with diverse materials. The units are then rated for their relative degree of lint pick-up, the optimum goal of course being to develop an assembly which picks up no lint.

Among the projects described to the NEWS and not listed as confidential are the development of a liquid pump for 2-pressure air conditioners (absorption), the development of a static condenser without fan, an optimum humidifier.

A Whirlpool engineer lives in the experimental Solar House at the Massachusetts Institute of Technology.

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isting products and market potentials, Whirlpool is proceeding with the development of an ammonia-water absorption air conditioner, and it is expected that a full scale field test on a limited production basis will be in operation in the summer of 1961. One Whirlpool source cites the possibility of a year-round system to be mounted outside the house.

"For a long time, everybody concerned with thermoelectric refrigeration spoke of our state of knowledge as being on a plateau where progress has been and must continue to be quite slow. When we actually studied progress we and others have made, however, we find that progress is really quite rapid," states E. R. Wolfert, manager of the Electrical Engineering Dept.

"Under the impetus of government contracts and industry's own interest in the matter, materials have been improved and the all important *delta T (Δ T)* (temperature difference available between cold and hot junctions) is steadily increasing."

In support of his contention, Wolfert reports that temperatures which formerly required cascade systems can now be reached with single-stage thermoelectric couples. He showed the NEWS a curve "Thermoelectric Materials Forecast" shown on the opposite page. He indicates that the curve coincides closely with one developed independently by the Russians, and both show progress on a relatively steep curve, not a plateau.

Russia and U. S. About Equal In Progress on Thermoelectric Research

Comparing Russian and American thermoelectric accomplishments, Wolfert says, "We are now both at about the same place."

The development of thermoelectric materials and devices is an area where basic research and trial and error are both valuable, states Dr. E. Gardner of the research group.

"We can theorize, for example, what should be the properties of a materials containing bismuth, antimony, and tellurium in varying amounts. But then we must make the material, and the variables involved in the very making can affect its properties greatly.

Whirlpool has extensive equipment to test the critical properties of semiconductor materials and of couples made from them. Studies of such items as electrical resistivity, thermal conductivity junction resistance are the paving materials on the road to practical thermoelectric devices, Whirlpool feels.

"Thermoelements which cost a couple dollars today will have to come down to say 11 or 15 cents in a few years for thermoelectric appliances to become mass items, and we feel that such prices will be reached."

Share Knowledge With Competitors

True to the principles of scientific inquiry, Whirlpool Central Research shares much of its thermoelectric knowledge with the industry, even with Whirlpool competitors, who are permitted to use Central Research equipment.

Much of Whirlpool's confidence in thermoelectric refrigeration comes from comparative tests conducted on an appliance formerly designed with an absorption refrigeration unit. The comparative tests showed the thermoelectric appliance uses less electrical power and pulls down to a lower temperature than the absorption device. "This in spite of the fact that the thermoelectric device must be on all the time."

However, Whirlpool spokesmen also point out that even as improved the unit is still not efficient nor could it be manufactured at commercially acceptable costs.

According to Whirlpool research people, there is much work to be done in developing effective and reliable rectifier power supplies for use in thermoelectric devices which must use direct current.

Emphasis on Product Development, Manufacture Helps Expand Sales 35%

TIPP CITY, Ohio—A special three-pronged marketing program resulted in a 35% sales increase for the 1958-1959 fiscal year and a second program keyed to achieve comparable results has been initiated by the Electric Motor Div. of the A. O. Smith Corp. here.

According to W. H. Dickinson, division manager, sales of electric motors reached a record high in 1959. New record objectives have been set for 1960.

Dickinson said the three-pronged program included "added attention to product development and manufacture, upgrading and expanding the sales field force, and capitalizing on the high degree of customer acceptance for the division's motor products."

He said, "We can attribute a large part of our sales growth to our increasing hermetic motor business. These motors are manufactured to rigid individual customer specifications for installation in their own sealed refrigeration compressors. In the ratings which we manufacture, we showed a much greater than industry growth over the past year.

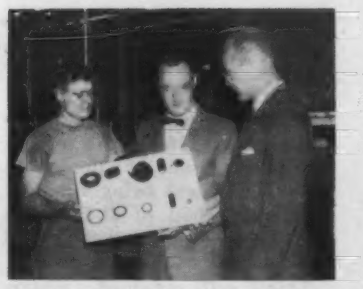
"Fractional horsepower jet pumps also showed marked gains, reflecting an increase in housing starts and home water systems. . . . At the same time, new products introduced last year — general purpose and blower fractional horsepower motors featuring the exclusive enclosed capsule design — started to take hold."

On the manufacturing side, Dickinson pointed to a rigid standardization program on parts and improved scheduling and reduced delivery time as big aids in the sales increase.

He listed these reasons for 1960 optimism:

(1) An expanded engineering department to obtain new designs for new applications quickly; (2) concentration of an effort on integral horsepower motors; (3) broadening of customers list in the jet pump field; (4) enlarge the scope of integral and hermetic motor manufacturing ("We plan to cover the entire integral horsepower hermetic line from 1-hp. high speed motors to 100-hp. low speed motors. In 1960 we will complete our coverage of this entire field."); (5) expansion of sales force.

Further indication of the division's growth plans in the electric motor field is the announcement that it has broken ground for a $1,400,000 plant expansion at Tipp City. This will result in a 45% increase in production area.



A MAXIMUM $1,500 award has been made jointly under the Maytag Co.'s work simplification program to Joe E. Henderson of the sheet metal and rubber department, and Larry Beals, a former employe now attending IBM school in Portland, Ore. The award was based on their suggestion to salvage rather than scrap metal components of parts molded in rubber when the rubber is found defective. A solvent is used to remove the defective rubber from the metal components. Above, President Fred Maytag discusses the award-winning idea with Henderson (left) and Don D. Duven (center), superintendent of sheet metal and rubber. They hold a display of parts where the idea is being applied.

Pioneer Starting $ Million Expansion

LOS ANGELES—A one million dollar plant expansion program, the greatest proportion of which will be invested in automation of production lines in both its Los Angeles and City of Industry manufacturing plants, has been started by Pioneer Mfg. Co., according to R. A. Polverini, president.

Polverini said that when the firm's expansion program is completed in mid or late 1960, it will permit doubling production volume in the same amount of floor space.

Other parts of the expansion program include a new 40,000-sq. ft. warehouse, employes' cafeteria, and expanded executive offices.

Pioneer is a 35-year-old Los Angeles firm which designs and produces a complete line of residential and commercial hot water heaters, swimming pool heaters, and home heating equipment.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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OHI Considers Competition--

(Continued from Page 1, Col. 2)

with samples of products under test were shown at the exposition, with one of the main attention-getters being the new oil-fired version of the Arkla-Servel absorption year-round air conditioner.

This self-contained water-cooled unit is available in two sizes. Model 500-FO is rated at 42,000 B.t.u.h. cooling capacity; Model 750-FO at 60,000 B.t.u.h. cooling capacity. Both have the same heating capacity of 96,000 B.t.u.h.

Other new products which attracted show visitors included the following:

System: First introduced several years ago with considerable fanfare and then kept pretty much under wraps, "Jet-Heet" has returned to the market with an improved oil-fired system that pipes 350° F. air to spaces through small (2 in. i.d.) insulated flexible ducts. Aspirating registers eliminate need for return air, and a 3-in. vent pipe is substituted for conventional chimney. System is said to be adaptable for summer cooling.

Burner: New model DH "Arcoflame" oil burner introduced by American Radiator features a die-cast aluminum housing. A sliding "exact-aire" control is mounted inside so that air setting does not have to be changed when servicing burner nozzle or electrodes.

Burner: "Watchdog" oil burner introduced by Esso Standard Div., Humble Oil, drives oil pump through a double "economy" clutch while burner fan is direct driven. This assures full flow of air for combustion before oil reaches nozzle and continues air flow for about 12 seconds after oil pump stops. More complete combustion thus obtained is claimed to cut oil consumption and improve cleanliness.

Burner: Fuel economy is claimed for the "Heat-Keeper" draft control device featured on the new Stewart-Warner Winkler "LP" (low pressure) oil burner. Combustion air damper on burner, which is closed during off cycle, opens automatically to pre-set point when burner starts. Arrangement is claimed to prevent "stand-by" heat loss during off cycle.

Burner: "Double Vortex" burner displayed by Nu-Way Corp. is still in field testing stage. Most combustion takes place in vortex chamber. Controls are built into burner cabinet.

Burner: Revolutionary design developed by Shell Oil (first announced a year ago) which converts fuel oil to gas before combustion is now being manufactured by Madsen Service of Minneapolis, but burner remains in field testing stage.

Thermostat: "Straight-Line" room thermostat introduced by General Electric Co. is of rectangular, vertical styling available in two models. Deluxe version has a dark brown face and light brown case; standard model is gray. Both models employ a sliding adjustable heat anticipator.

Thermostat: Two new lines of thermostats with a "Straight Line Look" in rectangular styling have been added by White-Rodgers Co. "D'LUXline" horizontal thermostat is available in three models for heating, cooling, or combination heating-cooling. Heat anticipator is adjustable for heating. A push-button base for controlling heating-cooling switchover and fan operation is available for this model. Vertical styled "MAINline" thermostat is available for heating only and employs fixed heat anticipator. Both lines feature sealed mercury contacts.

Controls: The S-45 line of fan and limit controls was introduced by General Controls Co. Available at a lower price, this new line employs a horizontal bimetal actuating element instead of the helical design generally used.

Baseboard Radiation: New "Multi/Pak" baseboard radiation enclosures shown by Slant/Fin permit four different types and sizes of finned tubing to be installed in the same size enclosure, thus simplifying stocking problems for the trade, the company claims. The enclosure can be used with (1) two tiers of ¾-in. aluminum on copper tube, (2) a single 1-in. aluminum on copper tube, (3) 1¼-in. steel on steel, or (4) 1¼-in. aluminum on copper.

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- *an engineer or executive* in an industrial plant or commercial establishment, a utility or an institution in which his primary function is the handling and treatment of air.
- *an industrial hygienist* concerned with the reduction of airborne hazards to the health of personnel.
- *a registered consulting engineer or architect* concentrating on the problems of air in new or existing facilities.
- *a mechanical contractor* specializing in air handling installations.
- *a Government authority* cooperating with industry to effect compliance with codes and regulations governing the purification of air.

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A *AIR ENGINEERING* is the *only* professional magazine dedicated to helping the Air Engineer fulfill his vitally important mission of creating pure air environment.

AIR ENGINEERING'S editorial objectives are, in brief: 1) to give readers up-to-date, practical working information useful in coping with air problems and 2) to bring together in closer communication fields and industries concerned with the handling and treatment of air.

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Publishers of "Air Conditioning, Heating & Refrigeration News"

Ralph Penn, Vice Chairman of Penn Controls, Dies

GOSHEN, Ind.—Ralph Penn, vice chairman of the board of directors of Penn Controls, Inc. here, died recently in Los Angeles.

Penn had been associated with the controls company since 1919 when he joined his brother Albert in the "switch" business. For over 40 years Ralph Penn helped guide the Penn Co. "from a very humble beginning to that of its present position of an international organization," it was noted. "His contribution to the progress of the company and the controls industry was a singularly notable one."

He was treasurer of the company for many years and in recent years has been vice chairman of the board of directors.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Airtemp Announces Ladies' Day Awards; 81% of Distributor Teams Top Quota

DAYTON — Airtemp Div. of Chrysler Corp. announced the winners of its Ladies' Day awards in the "Spring Slugfest" and reported that 81% of its distributor teams were batting above quota as the nine-week promotion moved into its fourth week.

The Ladies' Day awards, a choice of a white gold diamond necklace or a string of cultured pearls, were won by four teams, made up of a total of 23 Chrysler distributors.

Warren Fitch, Packaged Heating & Cooling market manager, announced the Red Sox and Giants as winners of the Ladies' Day awards in the American and National Leagues, respectively.

The Red Sox are made up of the following distributors, Southernair, Durham, N. C.; Neel & Floyd, Memphis; Allied Products Sales, Clifton, N. J.; Charter Supply, West Allis, Wis.; Horne-Wilson, Inc., Tallahassee, Fla.; and S. M. Ferguson Heating, Joliet, Ill.

The National League leaders, the Giants, consist of distributors Refrigeration Supplies, St. Louis; Houston (Texas) Branch; H. C. Gundlach, Richmond, Va.; Ohio Valley Hardware, Evansville, Ind.; Cooling-Heating Supply, Clarksdale, Miss.; and Eastern Climate Supply, Worchester, Mass.

E. Dale Dickson, Room Air Conditioner market manager, announced the Saints and Jets as winners of the Ladies' Day Awards in the Association League and the International League, respectively.

Distributors on the Saints' first place club are C. Carson, Detroit; the Houston Branch; Kremser-Oliver, Jackson, Miss.; Kingston Electric, Kingston, Pa.; Air Conditioning Supply, Salina, Kan.; McCarthy & Co., Milwaukee.

Members of the first place Jets are: Wilson Supply, Washington, D. C.; Neel & Floyd, Memphis; Southernair, Durham, N. C.; Ohio Valley Hardware, Evansville, Ind.; and Boulder Parts Corp.; Green Bay, Wis.

Money, Time Saved by Using Helicopters for Roof Installations

WASHINGTON, D. C.—Savings realized by use of a helicopter in placing heating and ventilating equipment on the roof of a plant were cited at the National Construction Industry Conference sponsored here recently by the U. S. Chamber of Commerce.

Said Lester C. Rogers, president of Bates & Rogers Construction Co., Chicago, in pointing out new ways to use existing devices:

"On one of the Convair plants a helicopter was used to hoist and place a total of some 100 tons of heating and ventilating equipment on the roof of the 13-acre building.

"This enabled placing in less than one shift instead of an estimated one month by conventional methods. It also permitted a material saving in roof reinforcing."

Acme Threading Moving Into Modern Building

BROOKLYN — Dependable Acme Threaded Products, Inc. announced that it is moving into an ultra-modern building providing 6,000 sq. ft. increased production facilities for the Acme Threading Div.

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In TV Advertising

FTC Charges American Radiator with Forcing Suppliers To Discriminate — 'History' Says Firm

WASHINGTON, D. C.—American Radiator & Standard Sanitary Corp., New York City, has knowingly induced discriminatory allowances from suppliers, the Federal Trade Commission charged recently.

The FTC's complaint (D. 7835) alleges the company solicited special allowances from suppliers to help defray the cost of television programs it sponsored in various trade areas, and that it knew or should have known these payments were not offered to its competitors.

This, the complaint charges, has obstructed trade and is an unfair method of competition in violation of Section 5 of the FTC Act.

Simultaneously, the commission issued separate complaints against the following two typical participating suppliers:

—Bridgeport Brass Co., Inc., Bridgeport, Conn., a manufacturer of brass, copper, and aluminum products, including tubular plumbing brass goods and copper water tubing. (D. 7842)

—Grabler Mfg. Co., Inc., Cleveland, a manufacturer of pipe fittings and accessories. (D. 7838)

Bridgeport and Grabler are charged with making promotional payments to American Radiator which were not made available on proportionally equal terms to all competing customers as required by Section 2(d) of the Robinson-Patman Amendment to the Clayton Act.

American Radiator, which has annual sales of about $500 million, manufactures many diversified products, including heating, cooling, plumbing, and kitchen equipment, the FTC noted. The company sells both through independent wholesalers and its own Amstan Supply Div., which also distributes similar products purchased from other manufacturers, it was stated.

The complaints cite the following as typical of the discriminatory allowances solicited by American Radiator from, and paid by, its manufacturer-suppliers:

"American Radiator received more than $15,000 from such suppliers between 1957 and 1959, and used these sums to help pay the expense of its TV programs known variously as 'Builders Showcase' and 'Showcase of Homes.' Bridgeport and Grabler paid it $4,950 and $3,400, respectively, for such purposes during this period.

"The programs were shown in New Orleans, St. Louis, Pittsburgh, and Dallas, and featured home constructed by local builders. In return for this payments, American Radiator through its Amstan Supply Div., promotes the sale of its participating suppliers' products to the builders and their subcontractors. In fact, the company does not permit homes to be featured unless the builders and subcontractors agree to purchase certain products from Amstan."

The respondents are granted 30 days in which to file answers.

NEW YORK CITY—The following statement was issued by a spokesman for American-Standard in reply to the charges made against the company by the Federal Trade Commission.

"On April 8th, the Federal Trade Commission issued a complaint against American-Standard, alleging that our Amstan Div. had competed unfairly in asking certain suppliers of that division to bear a portion of the cost of a series of experimental television programs.

"These programs, which were sponsored by local Amstan branches in four cities, featured model homes available in the program areas. The total cost of the programs to suppliers was less than $15,000. The programs were dropped last year because the tests were regarded as unsuccessful.

"The Federal Trade Commission knows that the programs were experimental in nature, that insignificant amounts of money were involved, and that the programs concerned have been terminated.

"The commission has brought the action on what seems to be a completely novel theory, namely, that Amstan should have required the suppliers supporting the experimental TV shows to make equivalent payments to Amstan competitors."

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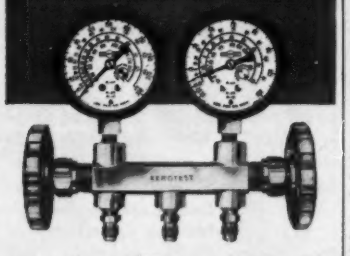

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The Kerotest Refrigeration Testing Outfit is used for a variety of services including:

Purging air or gas from high side of system—charging oil in low side—testing low side controls—charging liquid gas in high side—charging gas into low side—setting expansion valves—purging gas from gauge lines.

Kerotest Refrigeration Testing Outfits withstand severe service day after day. Sturdy forged brass construction in single or double units. Write for full information or send for catalog.

Ask your Kerotest wholesaler for Testing Outfits Nos. 5131 and 6131.

KEROTEST

KEROTEST MANUFACTURING CO.
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It's so easy!

Get Sparkling Clear, Conditioned Water with KARLSONITE*

HALTS CORROSION and SCALE DEPOSITION
Prevents Rust Stains on Equipment

KARLSONITE phosphate water conditioner holds minerals and metallic elements in water in perfect suspension, preventing clogging deposits that reduce efficiency of boilers, heat exchangers, cooling towers, etc.

Water for human consumption, too, is vastly improved. Crystal-clear, tasteless and non-toxic, it produces no deposits or rust stains in ice cubers, coffee urns and other equipment in most cases . . . when conditioned with KARLSONITE.

An easily installed KARLSON dispenser feeds KARLSONITE into the system automatically. With no moving parts, maintenance is nil. Only occasional replacement of the conditioner is required.

With KARLSONITE, it's so easy to get the most and the best out of your water system. The cost? Amazingly low. Why not investigate?

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1532 GRAND AVENUE • WAUKEGAN, ILLINOIS
*Reg. U. S. Pat. Off.

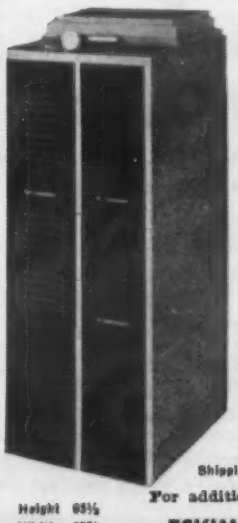
WATER CONDITIONING COMPOUNDS AND EQUIPMENT

THE ESKIMO YEAR 'ROUNDER
"AIR COOLED"

DESCRIPTION:

This is the exceptional *Eskimo* Year 'Rounder, a complete unit in one package which provides forced warm air heating in winter and luxurious air conditioning in summer. A factory built and tested unit which will efficiently and economically provide true year 'round air conditioning.

combines a 75,000 B.T.U. gas-fired furnace and a 1½ ton summer air conditioner.



FEATURES:

EMBOSSED STEEL CABINET
COMPLETELY AUTOMATIC CONTROLS
HEATING-COOLING THERMOSTAT
SUMMER-WINTER CHANGEOVER DAMPER
OVERSIZED BALANCED BLOWER
HERMETICALLY SEALED REFRIGERATION CIRCUIT
REMOTE AIR COOLED CONDENSER
FACTORY TESTED
ONE YEAR WARRANTY

$339.00

F.O.B. WAREHOUSE LOS ANGELES:
TERMS: Open if rated with D&B

Eskimo YEAR 'ROUNDERS ARE APPROVED BY BOTH AGA AND UL

Shipping Weight, Lbs. 545

Height 65½
Width 23⅞
Depth 29¼

For additional information, phone, wire or write to:

ESKIMO PRODUCTS DISTRIBUTORS
2146 Sunset Blvd., Los Angeles 26, Calif.
Phone DUnkirk 5-2239

They'll Do It Every Time

by Jimmy Hatlo

YORICK, CHECKER OF DELIVERIES, SCHMALTZ DEP'T STORE, SENDS OUT 100,000 PACKAGES A YEAR WITH NARY A MISTAKE....
SCHMALTZ DEP'T
HMM-MH... ANOTHER MONTH WITHOUT A COMPLAINT--SO FAR--SO GOOD!
BUT ON PACKAGE NUMBER 100,001, WHO IS IT THAT DOESN'T GET DELIVERY? WHY, THE WIFE OF THE HEAD MAN, OF CUSS, OF CUSS...
THANX AND A HATLO HAT TIP TO "ALLERGIC TO PUBLICITY" YOUNGSTOWN, OHIO
YORICK--THIS IS MRS. SCHMALTZ, WHO HAS A FEW WORDS TO SAY--AFTER WHICH--AHEM--I HAVE A SLIGHT ADDENDUM!!
SO I WAS HAVING A COCKTAIL PARTY--I ORDERED 6 DOZEN COCKTAIL GLASSES, AND WHERE WERE THEY DELIVERED? 3 WEEKS LATER TO THE MINISTER ACROSS THE STREET!!
PRESIDENT
2-16
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American Standard Promotes Supple to Product Planning Post

DETROIT — Promotion of Graeme B. Supple to a position in charge of future planning and development for products on the air side of air conditioning product lines has been announced by J. W. Hosler, general sales manager for American-Standard Industrial Div.

G. B. Supple

Supple will carry the title of product manager and will have his office at the division's home office in Detroit, according to the firm's announcement.

Among other marketing changes announced by Hosler is the appointment of T. I. Harriman as manager of pricing service, a new position created to fill a need indicated in studies of the first six months of operation under the streamlined ASID marketing organization.

Replacing Supple as manager of the division's Great Lakes sales region is J. A. McCain, former manager of the Detroit sales office.

In other moves, R. L. Graham, former manager of the Moline office, was named manager of the Los Angeles office, and R. W. Dallas, former manager of the Buffalo office, was named manager of the Detroit sales office.

Meeting of Sheet Metal Distributors Set for Columbus April 20-22

COLUMBUS, Ohio — Three business sessions including four special "clinics" will be held during the 50th spring meeting of the National Association of Sheet Metal Distributors scheduled at the Deshler-Hilton hotel here April 20 to 22.

Committee meetings and a welcoming reception starting at 6:30 p.m. are planned for Wednesday, April 20.

Morning session April 21 includes reports from A. B. Lewis, association president, and Thomas A. Fernley, Jr., executive secretary, and two talks: "The Business Outlook for 1960" by W. L. Sandston of Armco Steel Corp., and "Training Your Salesmen" by Cloyd S. Steinmetz of Reynolds Metals Co.

Three talks are programmed for the afternoon of April 21: "My Half Dozen Rules for Improving Your Advertising" by Melvin E. Tharp, Columbus *Citizen-Journal;* "Challenges to Credit Selling" by Prof. Robert Bartels, Ohio State university; "The Businessman's Place in Politics" by John M. Vorys, attorney.

There will be a reception and informal dinner that evening.

Final business session the morning of April 22 will open with a report of the product and information committee by Robert W. Mason, after which four business clinics will be held concurrently as follows:

"Inside the Office" (including financial planning, margin, credits, etc.). Chairman: W. O. Schoedinger.

"Outside the Office" (including performance standards for salesmen, essential and special functions to dealers). Chairman: A. M. Roberson.

"Warehousing and Delivery." Chairman: Leo J. O'Connor.

"Advertising and Sales Promotion." Chairman: A. B. Lewis, Jr.

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"SERVICE MAINTENANCE CONTRACTS AND AVERAGE CHARGES FOR SERVICE PARTS AND OPERATIONS."

Only 50¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

You Asked About It

From the many requests for information it receives, the NEWS will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry.

Q. We have witnessed a phenomenon which we are unable to explain. Refrigerant-12, at atmospheric pressure, boils at -21.6° F. We demonstrate this by releasing liquid refrigerant into a cup. It boils violently until the temperature reaches -21.6°, then it boils slowly and the temperature remains constant.

When this same refrigerant is poured into a porous, uncoated paper cup, it stops boiling, becomes sub-cooled, and lies dormant at a temperature approaching -60°. Several explanations have been offered, but each would require a flow from a cold substance to a warmer one. This seems contrary to the second law of thermodynamics. Can you explain this flow of heat?

D.J.B.—Cincinnati

A. "The principle involved is the same as that which has been used for centuries to cool drinking water in hot, arid regions by placing it in heavy canvas or leather bags exposed to the air," explains **F. Leslie Bates, associate professor of chemistry at the University of Detroit.**

"The liquid, in this case the refrigerant, is absorbed by the paper. It soaks through the paper and the outside of the cup becomes wet. The fine paper fibers present a large specific surface to the surrounding air so that liquid readily evaporates from them. This evaporation requires heat.

"The heat comes partly from the air, but some of it is also provided by the liquid itself. This is not in violation of the second law of thermodynamics because the surface of the liquid on the paper fibers where the vaporization is actually occurring is the coldest part of the entire system. Heat flows to it from **both** directions; from the air on the one hand and from the liquid on the other. Therefore, the body of the liquid becomes colder. Some of its internal energy has been transformed into the kinetic energy of the vapor molecules.

"Boiling may cease before the liquid in the center of the cup is cooled below the normal boiling temperature. Vapor bubble nucleation occurs most frequently on surfaces. The liquid film in contact with the inside surface of the paper cup will be considerably colder than in the center. If it is below the boiling temperature, bubble formation will be effectively quenched.

"The evaporation from the outer surface of the cup is accelerated in this case by the fact that a natural convection is set up at the surface because the vapor of the liquid is four to five times more dense than air. This convection current sweeps the vapors away continuously.

"To verify the above, suspend the paper cup containing the liquid by strings through its rim inside a tin can of slightly larger diameter, but so the cup does not touch the can at any point. The vapor will soon accumulate in the can, the air therein will become saturated, the temperature in the cup will rise and the liquid will probably begin to boil again after a little time."

Brochure Describes Portable Scaffolds

INDIANAPOLIS—A new 16-page brochure on portable steel scaffolds is now available from Baker Scaffolds, Baker-Roos, Inc., Dept. SL 776, 602 W. McCarty St., Indianapolis 6, Ind.

It illustrates the versatility of the single Baker scaffold unit as well as the numerous set-ups possible with multiple scaffold units to provide higher, wider, or longer work platform areas.

1=72* with STRAIN-O-KAP SR.® KIT

* 1 STRAIN-O-KAP SR. KIT may be adapted to any one of 72 applications

the newest idea in metering devices

No special tools are required nor is the length of the capillary tube changed. Simply install according to instructions.

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U.S. PAT. PENDING

JUST ONE STRAIN-O-KAP SR. KIT CAN REPLACE ANY ORIGINAL CAPILLARY TUBE ON;

- Installations ranging from 1/3 H.P. to 1 H.P. inclusive
- Low, medium or high temperature systems
- Systems using refrigerants 12 or 22
- 1/4" 5/16" or 3/8" liquid lines

STRAINER

A 1 H.P. capacity triple mesh spun copper strainer progressively filters the refrigerant in a turbulent free flow. Designed with a 3/8" solder inlet, the strainer includes a reducing bushing which permits solder installations on 1/4" or 5/16" liquid lines as well.

For complete information send for illustrated brochure. Dept. N24

WATSCO INC.
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Mighty METRO does it again!

INCREASES THE EFFICIENCY...LENGTHENS THE LIFE... OF AIR CONDITIONING SYSTEMS!

a well balanced program...

METRO DESCALER

Removes scale deposits—slime growths, too—from evap condensers and cooling tower systems. Safe, easy-to-use dry acid powder packed in handy 10 lb. bags or in bulk.

METRO EZ TREAT

A complete water treatment in one package. Controls scale, corrosion, slime all season long. Comes in disposable feeder-cans that automatically dispense chemicals. Packed six 5 lb. cans per case.

For further information, write:

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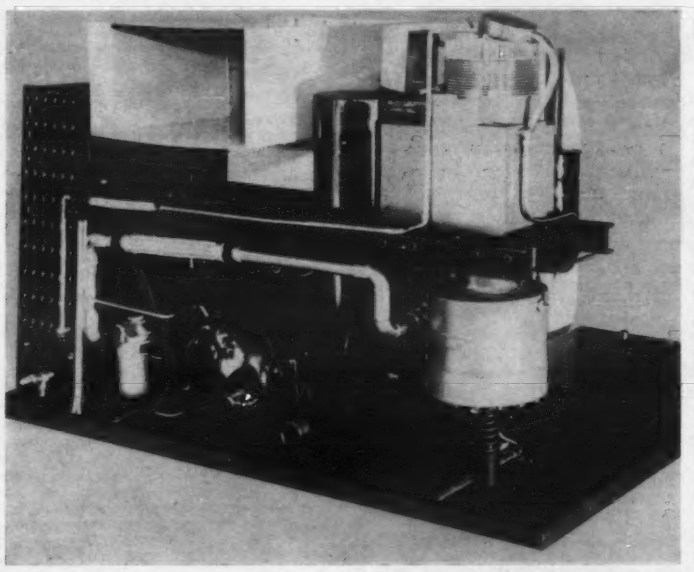


FREE-PISTON AIR CONDITIONER—This 3-ton condensing unit is a prototype making use of the free-piston compressor developed by Battelle Memorial Institute, Columbus, Ohio, and now being further developed by Robertshaw-Fulton Controls Co. A discussion of free-piston progress will be included in the May 30 NEWS report on gas air conditioning.

Large Systems--

(Continued from Page 1, Col. 3)

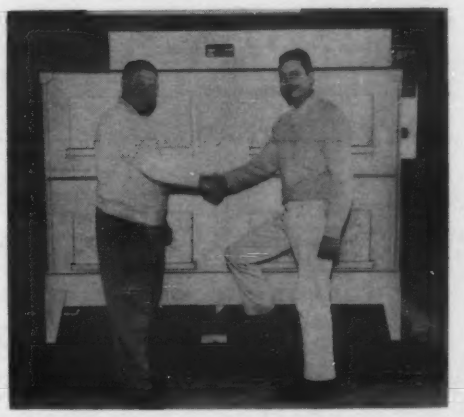
25 hp. and over. They do not include any figures for brine chillers or equipment utilizing ammonia as refrigerant.

Actual cost of the equipment included in the base is estimated at about 10% of the installed value of central station systems. The remainder includes labor, ducts, controls, insulation, plumbing, and other installation costs.

It was pointed out that these big "systems," which gave most Americans their first taste of air conditioning, still account for the largest share of the industry's sales and offer a very great potential in the industrial field, in which less than 10% of all factories are air conditioned.

Installed value of systems put into operation each year since 1950, based on figures reported to ARI and adjusted so as to be comparable in base with the 1959 figure just released, is estimated at:

1950	$222,060,000
1951	252,890,000
1952	206,550,000
1953	255,360,000
1954	341,860,000
1955	390,390,000
1956	537,410,000
1957	604,730,000
1958	604,130,000
1959	715,080,000



BILL RAHN, plant manager of Recold de Mexico (left) and Hal Jarvis, vice president and general manager of Recold de Mexico, proudly exhibit the first Recold closed circuit evaporative water cooler to be completely manufactured in Mexico with Mexican materials and Mexican labor. The unit, which has a 9,000 c.f.m. capacity, will be shipped from the Durango plant, destined for the new Crawford's supermarket, now nearing completion on the outskirts of Mexico City. Rahn, plant manager of Recold de Mexico, is in his 25th year with Recold. Hal Jarvis is celebrating his 10th year with Recold and has been responsible for the activities of Recold de Mexico since work first began on the Durango plant early in 1959. Previous to this, Jarvis served as advertising and sales promotion manager of Recold.

E. A. Greenlee Named By Barber-Coleman

ROCKFORD, Ill. — Barber-Colman Co. has announced the appointment of E. A. Greenlee as division manager of the Air Distribution, Automatic Controls and Industrial Instruments divisions.

He was formerly sales manager of the Automatic Controls Div. Peter Van Dae has succeeded Greenlee in that post. Van Dae was formerly sales promotion manager for the Automatic Controls and Air Distribution divisions.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Dallas Code--

(Continued from Page 1, Col. 2)

minimum standards provisions of the code are to be properly observed, those who install air conditioning and ventilating equipment must be properly qualified," declared Col. John A. Smith, Jr., executive secretary of ACRA of Dallas.

"The contractor organizations developed the safety code for air conditioning at the request of the City Building Inspector and other city officials in 1957, and when we took the logical step last year of providing for the examination and licensing of those who were to install the equipment, it met with their approval. We have two near catastrophes with installations that narrowly missed resulting in the loss of scores of lives, and these would never have happened if the work had been done by qualified contractors.

"So far as costs are concerned, we have made studies and presented figures which will prove that licensing fees would not be over $1 per house."

Smith said that the contractor groups will "pursue vigorously" efforts to make certain that properly qualified contractors work on air conditioning installations in the Dallas area.

The licensing provisions of the code which are now revoked provided for the licensing of all contractors doing installation work. A "grandfather" clause permitted the granting of licenses of those who could prove sufficient experience, but those who did not meet this requirement were required to win the approval of a nine-man examining board, which included representatives not only of the trades involved, but also of the city building inspection and other interested parties.

Consulting Engineers--

(Continued from Page 1, Col. 1)

precede the directors' meetings, and another executive committee meeting is scheduled for Saturday, May 7. Principal social events include an Indian Potlatch-type dinner on the beach on Wednesday, May 4, and a banquet on Thursday night, May 5.

MCAA Convention Program--

(Continued from Page 1, Col. 5)

Advisory Council and Joint Industry Program Committee as guests.

Formal opening of the convention is set for 9 a.m. Monday with the call to order by William P. Scott, MCAA president, who will also give the president's address at this session.

Other addresses will be presented Monday morning by John T. Dunlop, impartial chairman, Construction Industry Joint Conference, and Philip Ray, Undersecretary of Commerce.

Among other events scheduled for the Monday morning session are welcome to New York by Joseph A. Courter, president, Mechanical Contractors Association of New York; response by Joseph S. Kearney, MCAA vice president; presentation of the Distinguished Service Award by H. Merwin Porter; appointment of convention committees, introduction of committee chairmen, and report of the resolutions committee, according to the association.

Also on Monday there will be a luncheon for the board of directors and presidents of local associations, a ladies' luncheon and fashion show, and, in the evening, a get-together cocktail party.

At the general session on Tuesday morning, the contractors will hear an address by Peter T. Schoemann, general president of the United Association.

This will be followed by the opening of the fourth annual business conference, which will continue in the afternoon.

The preliminary program also calls for a ladies' luncheon and tour of the United Nations building, an advertisers' luncheon for all men attending the convention, and meetings of MCAA internal committees.

Starting off the program for Wednesday is a breakfast for past national presidents. This will be followed by a closed business session at 9 a.m. for action on the Resolutions Committee report and the report of the Committee on By-Laws.

At the general session starting at 10 a.m., members will hear reports of the Credentials Committee, treasurer, and Auditing Committee. Next will come a statistical survey panel discussion with Anthony L. Cherne as chairman, and an address on overhead management for mechanical contractors by William P. O'Donnell, who is a CPA and partner in Frank G. Tusa & Co., accounting firm.

In the afternoon, there will be a pipe welding panel, with William E. Maloney as chairman, and a labor panel for members and secretaries only, with Thomas J. Ryan acting as moderator.

Other Wednesday events are a ladies' theater party, Nesbitt cocktail party, and the annual dinner dance.

Another general session will be held Thursday, starting at 10 a.m. Programmed for this session are a report of the Junior Executives' Group, Henry J. Nottberg, Jr., president; an address by Calvin Johnston, executive assistant to the executive vice president, Remington Rand Corp.; reports of the secretaries' conference, complimentary resolutions, and Nominating Committee; and election and installation of officers.

The newly-elected board of directors will meet in the afternoon.

"DRILLED *MORE* THAN 100 HOLES in Hard Concrete *WITHOUT RESHARPENING*"(*)

IMPOSSIBLE with steel star drills! ***ROUTINE*** with the NEW ENGLAND *Thunder-twist*®

Carbide-Tipped MASONRY BITS

Most economical bit you can use in any electric or pneumatic hammer! Drills in any masonry from brick to granite. Does the work of 16 star drills. And it's a one-man operation! Exclusive combination of vertical and spiral flutes provides positive dust removal . . . no packing, stalling, or binding. Tops in economy and efficiency on *every* job. Sizes: 3/16" to 1½" diameter. Extended lengths up to 18". Send for free drilling manual.

Other New England Carbide-Tipped Bits Include:

Cyclo-twist®

Bits for rotary drilling of ordinary masonry.

Cyclo-Core®

Multi-Tipped Bits for rotary drilling of hard masonry.

NEW ENGLAND CARBIDE — Designed, Engineered, and Proven for the Job.

(*) Write for proof of performance

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CARBIDE TOOL CO., INC.
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Address.....

City.....State.....

AIR...
the delivery you need in the space you have!

Revcor
"BLASTAIRE" BLOWER WHEELS

Single and double inlet in 22 dia. from 3 27/32" to 15"; widths 1" to 15". For maximum air and pressure in minimum space.

Revcor
"R" DESIGN BLOWER WHEELS

For heavy duty applications in oil burners, industrial ovens, etc. Diameters 5¼" to 12⅝". In steel, aluminum, stainless steel.

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FAN BLADES

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Inlet Rings and Housings also Available

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PATENTS

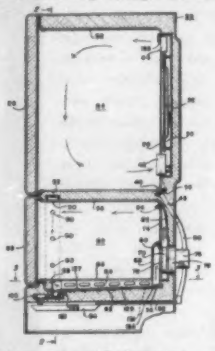
Week of Nov. 17 (Concluded)

2,912,917. BASEBOARD DIFFUSER. John Raymond Carroll, Urbana, Ill., assignor to Borg-Warner Corp., a corporation of Illinois.

1. A baseboard diffuser comprising a generally rectangular base member, said base member including a top panel, opposite side panels, inwardly and rearwardly extending interior side walls, and a back wall extending rearwardly and downwardly from the front edge of the top panel to the plane of the rear edge of the said top panel and thence downwardly in said plane. . . .

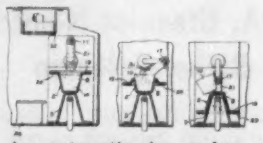
2,912,934. REFRIGERATING APPARATUS. Leonard J. Mann, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

1. A household refrigerator including an insulated cabinet containing generally box-shaped food compartment and freezing compartment liners,



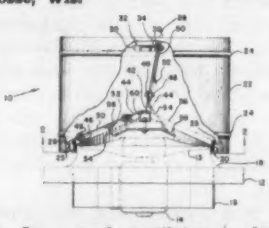
the bottom of said freezing compartment liner being formed into a drain pan provided with a drain outlet. . . .

2,912,936. ICE MAKER. Harold P. Harle, Louisville, Ky., assignor to General Electric Co., a corporation of New York.



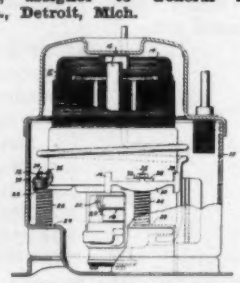
1. An automatic ice maker comprising a refrigerated member, an ice mold having flexible side walls and a bottom wall supported in heat exchange relationship on said refrigerated member, and means for releasing an ice piece from said mold comprising a crank disposed above said mold and pivoted means connecting said crank to an upper portion of said mold whereby turning of said crank peels said flexible side walls downwardly from said ice piece. . . .

2,912,920. THERMALLY CONTROLLED ROOF VENTILATOR DAMPER. Robert B. Coe, La Crosse, Wis., assignor to The Trane Co., La Crosse, Wis.



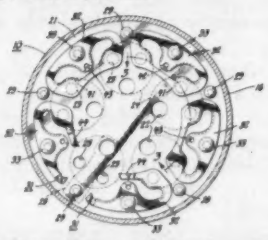
1. In a roof ventilator, a damper blade hinged to said ventilator, a torsion spring having a first end and a second end projecting outwardly therefrom, said first end being mounted on said damper blade, heat destructible means connecting said first end and said second end, and means secured to and supported by said ventilator below said second end to support said second end when said heat destructible means is destroyed by heat to cause said first end to open said damper blade when said heat destructible means is destroyed by heat.

2,913,166. REFRIGERATING APPARATUS. John Weibel, Jr., Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



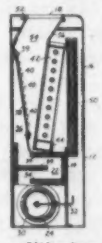
In a sealed motor-compressor unit, a casing, a motor having a drive shaft, a compressor directly connected to said drive shaft, a frame for supporting said motor and compressor, a plurality of resilient means suspending said frame within said casing, each of the resilient means including a coiled compression spring disposed in a vertical plane and supporting the weight of said frame, said motor and said compressor. . . .

2,913,168. REFRIGERATING APPARATUS. John H. Heidorn, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



4. In a fluid compressor, a cylinder block provided with at least three compression chambers, a piston operable in each of said chambers, means forming an inlet and two outlet ports for each of said compression chambers, means for sequentially operating said pistons, a pair of reed type valves of substantially elliptical planar shape for the outlet ports of said chambers. . . .

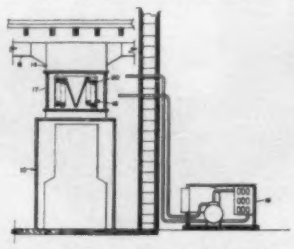
2,913,227. AIR CONDITIONING UNIT. James D. Bottorf and Otto A. Labus, La Crosse, Wis., assignors to The Trane Co., La Crosse.



1. An air conditioning unit adapted to be mounted in a conditioned space, comprising a substantially rectangular cabinet, a recirculated air inlet opening in the front side of said cabinet, a nozzle plate having a plurality of vertically spaced nozzles arranged substantially in a plane inclined upwardly toward and extending along the back of said cabinet, means for supplying air under pressure to said nozzles. . . .

2,913,239. AIR CONDITIONING APPARATUS. William E. Hood and Carl G. Alt, Syracuse, N. Y., assignors to Carrier Corp., Syracuse, N. Y.

2. In combination with a heating plant including a combustion chamber, means for delivering air to the combustion chamber to be heated, and a plurality of duct units forming a system, providing a path for the flow of air from the combustion chamber, a refrigeration system including an evaporator assembly comprising a casing adapted to be interchanged with one of said duct units so that air flowing in the system may be cooled, said evaporator assembly further including spaced coil members. . . .

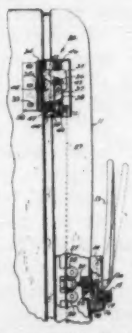


2,913,604. AIR-CLEANING CENTRIFUGAL-BLOWER APPARATUS. Gerhard P. Lessmann, Forest Hills, Pa., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.

1. A blower assembly comprising a rotatable centrifugal blower having generally radial blades, and housing means for said blower, said housing means including a plurality of vane members disposed circumferentially around the blower and radially spaced therefrom to cause air discharged radially from the blower to change direction and flow axially. . . .

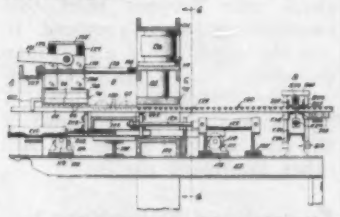
Week of Nov. 24

2,913,758. LATCH APPARATUS FOR RIGHT- AND LEFT-HAND DOORS. Edwin B. Jacobson, Grand Rapids, Mich., assignor to Jervis Corp., Grandville, Mich.



1. Latch apparatus for enabling the hinged opening of a door member with respect to a door frame member from either of two opposed door edges comprising a pair of latch mechanisms, one adjacent each of said opposed edges of said door, each of said latch mechanisms including a keeper hingedly connected to one of said members. . . .

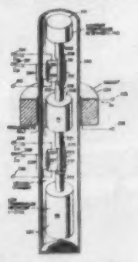
2,913,906. FABRICATION OF HEAT TRANSFER UNITS. Richard W. Kritzer, Chicago, Ill.



Apparatus for securing serpentine tubing units having reach sections which are oval in cross section in fin stock comprising; a work holder for supporting a plurality of strips of such fin stock in parallel spaced relationship and including spacer members extending from the tops to the bottoms of the strips. . . .

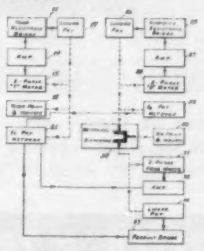
2,913,951. MAGNETIC REFRIGERATOR HAVING THERMAL VALVE MEANS. Richard L. Garwin, Scarsdale, N. Y., assignor to International Business Machines Corp., New York City.

1. An adiabatic demagnetization refrigerator comprising the combination of; a paramagnetic salt pill; means for alternately magnetizing and



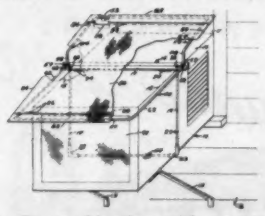
demagnetizing said salt pill, first means having a constant temperature. . . .

2,913,902. RELATIVE HUMIDITY MEASURING APPARATUS. Hugh Neil Ross, Silver Spring, Md., assignor to American Instrument Co., Inc., Silver Spring, Md.



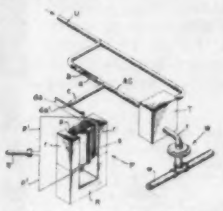
1. An apparatus of the character described comprising a temperature function network, a temperature-responsive circuit including a temperature-responsive resistance connected to said network and being formed and arranged to develop a first signal in said network in accordance with a temperature change, a humidity function network. . . .

2,914,075. SUN PROTECTION ASSEMBLY FOR WINDOW-TYPE AIR CONDITIONING UNIT. James R. Wells and James B. Thompson, Omaha, Neb.



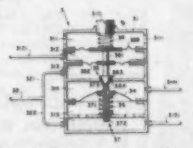
1. In combination with an air conditioner mounted in a window and having a substantial part thereof extending outwardly exteriorly of the window opening, a cross member extending transversely across the top of that portion of the air conditioner exterior of the window, clamping means secured to said cross member and engaging said air conditioner for securing said cross member to said air conditioner. . . .

2,914,076. FLAPPER-NOZZLE COUPLE WITH PERFORATED FLAPPER. Frederick H. Zimmerli, Fort Washington, Pa., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



1. In a force to pressure transducer, the combination comprising, an air space having a restricted air inlet and a nozzle outlet, said nozzle outlet disposed to have the air issuing therefrom in a jet, a flapper disposed transversely of said jet and having a hole therein in alignment with said jet so that the air from said jet will produce a force on said flapper in the area adjacent said hole. . . .

2,914,077. AIR-PRESSURE-ACTUATED, CYCLICALLY OPERATING CONTROLLER. Edward C. Grogan, Philadelphia, Pa., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis.



15. Means for varying the pressure of a supply of air in a cycle including a maximum and a minimum and for repeating this cycle, including, a chamber an inlet valve controlling the admission of air to said chamber, an outlet valve controlling the exhaust of air from said chamber, a movable member forming a wall of said chamber and exposed on one face to the

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

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POSITIONS WANTED

REGIONAL MANAGER now with national concern desires position in Florida. Age 38, has fifteen years in air conditioning & heating, five years with heat pumps. Need approximately $14,000 plus expenses. Replies will be held confidential. Write: BOX A6536, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

MANUFACTURER'S AGENTS wanted in several key trade areas to represent our complete line of air conditioning products. For information, write Manager, Air Conditioning & Refrigeration Division of CRANE CO., Johnstown, Pennsylvania.

SHOP SUPERINTENDENT wanted by Florida manufacturer of quality heating and air conditioning equipment. First class assembly line production man capable of expediting construction and ability handle employees—must be cost conscious. Small but fast growing corporation with unlimited potential. Opportunity to advance—salary open. Send complete background, age, education, etc. to: BOX A6516, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION SERVICE Manager wanted by old established Florida contractor. Must be capable of servicing all types of heating and air conditioning equipment, organizing and operating service department at profit and handling customer relations. Send complete resume of education, age, experience, and reference to: BOX A6517, Air Conditioning, Heating & Refrigeration News.

AIR CONDITIONING Sales Engineer wanted by well-established Florida contractor handling highest quality equipment for past 15 years. Must be graduate Mechanical Engineer, pleasing personality, capable of selling quality installations. Earnings limited only to ability and initiative. Send resume, photo, complete details to: BOX A6518, Air Conditioning, Heating & Refrigeration News.

WHOLESALE SALESMAN: Distributor, air conditioning and heating equipment for the top national manufacturer, needs a man for the Buffalo, New York area to call on dealers, architects, consultants. We require a hard-working, ambitious, experienced man who would share in the profits and have a voice in management. Please send complete resume to: BOX A6527, Air Conditioning, Heating & Refrigeration News.

SALES REPRESENTATIVE — Well-established Eastern refrigeration manufacturer offering flat-top and roll-top coolers, display cases, reach-ins, ice cubers, etc. to qualified sales representatives now calling on the restaurant, bar, and dairy supply dealers. Protected territories open including 1) New England 2) New York-Penna.-New Jersey 3) Western Penna.-Ohio. Quality products, growth potential, good reputation. Write: BOX A6534, Air Conditioning, Heating & Refrigeration News.

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NORGE REPLACEMENT units brand new for all models 1941 thru 1951 complete with evaporators, relays & capacitors. $35.00. Order by model number. Also ¼ H.P. sealed units $35.00 F.O.B. Detroit. CHAMPINE REFRIGERATION SUPPLIES, 451 E. Milwaukee, Detroit 2, Michigan.

ONE GENERAL Electric 2 H.P., F12 air cooled condensing unit, model 21CWC42C205A—like new. One General Electric 3 H.P., F12 water cooled condensing unit, model 9MG3R141B—completely rebuilt. One General Electric 30 H.P., F12 motor compressor unit, model CM104W with magnetic starter, compressor—completely rebuilt. One General Electric fan, coil, filter section complete with six row cooling coil, 2 row steam—capacity 3 ton. Unit rebuilt and painted, model 21HO200. One Worthington fan coil unit, 4 row DX coil, capacity 2 ton, 600 CFM. Used on demonstration only. Will sell all or part. Write: DIXON A.C. & R. ENGINEERING CORPORATION, 9 Center Place, Williamsport, Penna.

"ANNIE" HERMETIC Analyzer — A new compact, low cost, multi-purpose, hermetic unit analyzer is now being marketed by MECHANICAL REFRIGERATION ENTERPRISES. Designated "ANNIE" this versatile analyzer will quickly diagnose unit troubles, up to 1 HP, 125 VAC. Only $24.95 net. See your jobber or write—Box 122, North Hollywood, Calif.

WATER COOLERS, electric. Manufacturer's closeout due to model change. Bottle type with refrigerated, stainless steel storage compartment. Tecumseh ¼ h.p. hermetic unit, fan condenser. Attractive, sturdy. Complete with five-year warranty on hermetically sealed refrigeration circuit. $118.00 each subject to prior sale. REMCOR PRODUCTS COMPANY, 321 E. Grand Avenue, Chicago 11, Illinois.

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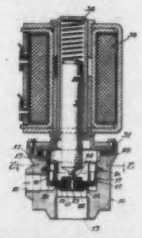
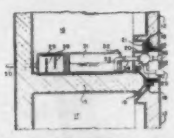
pressure of the air in said chamber and having an inherent bias away from its mid-position so as to move said valves with a snap action. . . .

2,914,086. VALVE DEVICE. Wilbert E. Beller, Park Ridge, Ill., assignor, by mesne assignments, to Controls Co. of America, Schiller Park, Ill.



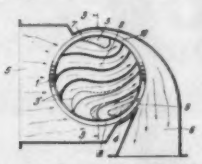
1. A pilot operated pressure actuated valve comprising, a body having an inlet and an outlet with a bore aligned with the outlet, a piston in the bore, said piston comprising a centrally apertured member having a downwardly opening annular well around its periphery and slidably mounted in the bore. . . .

2,914,218. REFRIGERATION APPARATUS. Paul C. Korodi, Columbus, Ohio, assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



1. In a refrigerator, an insulated cabinet, a horizontal insulated partition dividing said cabinet into upper and lower food storage chambers, said partition forming the bottom wall of the upper chamber, a door for each of said chambers, said doors being movably carried by said cabinet. . . .

2,914,243. FANS. Bruno Eck, Koln-Klettenberg, Germany. Original application March 1, 1955, Serial No. 493,432. Divided and this application Dec. 17, 1956, Serial No. 628,632. In Germany Feb. 7, 1950.



1. In a casing, a fan comprising, in combination, a disc, mean supporting said disc in said casing for rotation about an axis in a predetermined direction, impeller means including a plurality of elongated impeller blades each connected at one end to said disc uniformly distributed around the axis of rotation thereof at the same distance from such axis and each being substantially parallel to the axis to form a cylindrical space. . . .

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Welbilt Air Conditioning & Heating Corp.—Named as franchised representatives for the new Welbilt line of residential and commercial air conditioners and air conditioning components were EXCEL REFRIGERATION SUPPLIES, INC., Brooklyn; MARCO REFRIGERATION SUPPLY CO., INC., White Plains, N. Y.; and HALSEY SUPPLY CO., Brooklyn.

Connor Engineering Corp.—The ARCHIBALD CO., Butte, Mont., has been appointed sales representative in Montana for "Kno-Draft" air distribution equipment and "Dorex" air recovery products.

Northwest Foundry & Furnace Co.—Appointed manufacturer's representative for Wesco central, forced air electric furnaces were FRED HENDERSON CO., Berkeley Calif., for northern California and western Nevada; WEBER SALES CO., Van Nuys, Calif., mobile homes industry; A. J. TAYLOR, Little Rock, Ark., for Mississippi and Tennessee; and CLARKE ENGINEERING SALES, Dallas, for Texas, Oklahoma, Arkansas, and Louisiana.

Heil-Quaker Corp. — TENN YORK SUPPLY CO., Nashville, has been named distributor for Heil central heating and air conditioning units and Quaker space and wall heaters in the Midstate trading area. Tenn York is one of 14 new distributors added in a recent expansion program.

Heating & Air Conditioning Div., Century Engineering Corp. — EVERETT W. JOHNSON, Fort Dodge, Iowa, and GEORGE G. WOLFE SALES ASSOCIATES, Glen Ridge, N. J., have been appointed manufacturer's representatives for heating and cooling equipment. Johnson will cover the west half of Iowa and the state of Nebraska; the Wolfe firm will cover New York, New Jersey, and Pennsylvania.

American Automatic Ice Machine Co. — ALLIED STORE EQUIPMENT CO., Minneapolis, has been named "Crystal Tips" ice machine distributor for six counties in Minnesota.

Admiral Corp.—OTT-HEISKELL CO. has been appointed distributor in a newly-created Wheeling, W. Va. territory. The territory comprises 15 counties in northern West Virginia and eastern Ohio formerly covered by distributors in Pittsburgh and Charleston.

Universal Cabinet Corp. — ARROWHEAD MFG. CO., North Hollywood, Calif., has been appoint distributor for refrigerated cabinets in California.

Ruud Mfg. Co. — FAIRMONT SUPPLY CO., Fairmont, W. Va., has been named Ruud plumbing industry distributor in eight West Virginia counties.

Gibson Refrigerator Div., Hupp Corp.—Named to handle the Gibson line were K. K. CO., Omaha, Neb., and NATIONAL SALES CO., Rochester, N. Y. Replacing Dean Distributors, National Sales will cover 10 counties in the northwestern New York trading area. K. K. Co. will cover 80 counties in Nebraska and seven in Iowa.

Marlo Coil Co.—Appointment of JAMES E. BRENNAN, Wallingford, Conn., as sales representative in Connecticut for Marlo air conditioning and heat transfer equipment has been announced.

Amana Refrigeration, Inc. — JOSEPH STRAUSS CO., INC., Buffalo, has been appointed distributor for the Buffalo area. The territory includes the western portion of New York state plus a tier of counties in northwestern Pennsylvania.

Westinghouse Electric Corp. — AUTOMATIC HEATING SUPPLY, INC., Springfield, Ill., has been named a wholesale distributor for air conditioning and heating equipment.

Cleaver-Brooks Co.—This manufacturer of packaged boilers is expanding its Wisconsin agency network. Prime step in this move is the division of the present agency, DYKE & TUTSCH CO., into two separate agencies. One of these, DYKE & ASSOCIATES, INC., will be headquarted in Milwaukee and will service the nine counties of southeastern Wisconsin. The other agency, HEAT EXCHANGE PRODUCTS CO., also in Milwaukee, will cover Madison, Green Bay, and Fox River Valley industrial trading areas as well as northern Wisconsin and Upper Michigan.

Typhoon Air Conditioning Div., Hupp Corp. — FURNACE DISTRIBUTORS, INC. has been appointed distributor for the Philadelphia area.

Lennox Appoints Lakey as Director Of Marketing Services

MARSHALLTOWN, Iowa — Lennox Industries, Inc. announced the appointment of Roger C. Lakey as director of marketing services.

Lakey will direct the activities of J. R. Merrill, national advertising manager; Cal Floren, new public relations manager; Robert Zimbelman, new sales promotion manager; and Arthur J. Benoit, creative art director. These are the key men in a reorganization of the former corporate merchandising department.

The broadened scope of the new marketing services department will be to provide national advertising, publicity and public relations, dealer educational, sales and promotional programs, materials and technical information. It also includes direction of communications for the corporate headquarters and the nine factory-sales divisions throughout North America.

Lakey's previous assignment as special representative was to analyze the company's complete informational and promotional activities and to organize them into a system that would meet requirements of the greatly-expanded marketing activities of Lennox.

Merrill, Lennox national advertising manager in the new organization, has been handling the company's national advertising program for the past seven years. He will continue to direct it through Peitscher, Janda/Associates, Inc., Chicago.

R. C. Lakey

Cal Floren

R. Zimbleman

A. J. Benoit

Floren has been named public relations manager, a post newly-created to help meet the broadened objectives of the marketing services department. For the past ten years Floren has been with the old Lennox merchandising department.

As new sales promotion manager, Zimbelman takes over the Lennox literature, direct mail, billboard, and a host of other promotional programs. His agency assistance comes from Biddle Co., Bloomington, Ill.

Zimbelman is an art and advertising major from the University of Chattanooga. He has been with Lennox three years.

Benoit, creative art director of the new Lennox department, has recently received national recognition for illustrations in *Post, Life,* and *Time* magazines. Of six entries in national window display contests, during the past year, he has won three first prizes and three second prizes.

He has spent two years doing commercial art in Chicago and eight years with Lennox Industries in Marshalltown.

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Certification--

(Continued from Page 1, Col. 5)

than two months. Since that time, units of various manufacturers have been selected at random in keeping with the program mandate and we have been running at full capacity."

Tests are made to determine whether the unit in question meets the rated capacity claimed by the producer and to establish its performance under adverse conditions, Reed said.

One part of the test involves running the unit for four hours with the inside coil subjected to an indoor temperature of 95° F. and the condenser coil subjected to an outdoor air reading of 115° F.

After running for four hours, the unit is shut down for two minutes to allow the heat to "soak in." It is then run again for one hour. During this performance test, the unit may "trip out" and start again only once, Reed stated.

"We have received excellent and honest cooperation from the industry's unitary equipment manufacturers," Reed said. "As of this moment, not one has had to be dropped from the ARI directory.

"Should a manufacturer's equipment provide fewer B.t.u. than claimed or otherwise fail to meet the specifications, we will give him one of three options—reduce his rating claim, halt production of the unit in question, or withdraw from the industry program.

"We do not foresee that there will be much, if any, difficulty in this procedure of independent validation of claimed product performance which the industry has adopted for its own and the public's good."

The Unitary Certification Program now is supported by 46 manufacturers producing 90% of the industry's unitary equipment, it was stated. All certified equipment bears the ARI Certification Seal. Included in the program is all unitary equipment producing up to 135,000 B.t.u. Expression of rating capacity in terms of B.t.u. is required under the program.

Peerless Pump Appoints Blair

LOS ANGELES — Appointment of Walter J. Blair as vertical pump product sales manager, Peerless Pump, Hydrodynamics Div., Food Machinery & Chemical Corp., has been announced by G. F. Twist, FMC vice president and division manager.

W. J. Blair

Blair will be in charge of planning and supervising the sales activities for the complete line of vertical pumps, including the "Deepwell Turbine," "Hi-Lift," and "Hydro-Line" models made by Peerless.

Blair first joined Peerless in 1949. He has served as a sales engineer in the Los Angeles area and, for the past several years, he has been the product sales manager of the process line of pumps produced by Peerless.

Tucson Suit on Inspection Policy--

(Continued from Page 1, Col. 4)

earlier this year, the pipe and electrical trades groups held a meeting in which R. B. Diedrich, representative of the Arizona Pipe Trades Industry program, attacked the new ordinance as being "unworkable" and "bringing shame over the construction industry."

Diedrich said that after nine months during which the ordinance had been in force, a "crash program" of spot inspections by the city turned up at least one violation in each of the 242 houses inspected.

Among the violations allegedly found: houses completed and occupied without a final FHA inspection report submitted, gas and lights turned on with no city clearance, electric wiring not properly grounded, transite vent pipe not caulked, no plaster rings on any electrical fixtures, 10 wires in a 9-wire box.

The electrical and pipe trades say that the FHA and VA standards are not intended to serve as a building code.

"We take the position," they state, "that the city, using inspectors who are specialists, could do a better job of inspecting than the FHA, whose men are required to be jacks of all trades.

"Arguments that the new law was needed to eliminate multiplicity of inspections and additional costs to purchasers might seem reasonable, but we take the position that if a set of inspectors should be eliminated, it should not be the city's. The city has one of the best inspection forces existing."

NAHW Convention Plans--

(Continued from Page 1, Col. 3)

along with a membership meeting, two luncheons, banquet, and other entertainment features.

Wesley A. Songer, president of the Crane Co., will be one of the luncheon speakers, talking, appropriately enough, on the subject "Organizing for Change."

A post-convention meeting in Mexico City and a sight-seeing trip to Acapulco are planned also for May 5 to 11.

The New Orleans meeting will get under way on Sunday, May 1, with a luncheon for trustees and a reception that same evening.

Activities programmed for May 2 include committee meetings in the morning, a luncheon featuring Dr. John H. Furbay, director of TWA's global education program, speaking on "Doing Business In the Jet Age," and an afternoon panel workshop on inventory control. Latter will be moderated by W. Evert Welch, corporate consultant on inventory management to Minneapolis-Honeywell Regulator Co.

Membership breakfast and meeting will be held Tuesday morning, followed by a panel workshop on the subject "Is the Customer Always Right?" to be moderated by J. Orville Garrett, president-elect of the association.

Songer of the Crane Co. will address the Tuesday luncheon, after which there'll be the annual golf tournament, a 30-mile tour of the Mississippi, reception, and banquet.

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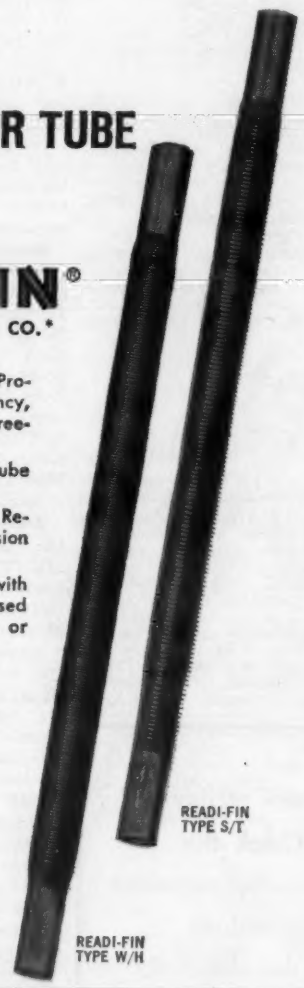

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